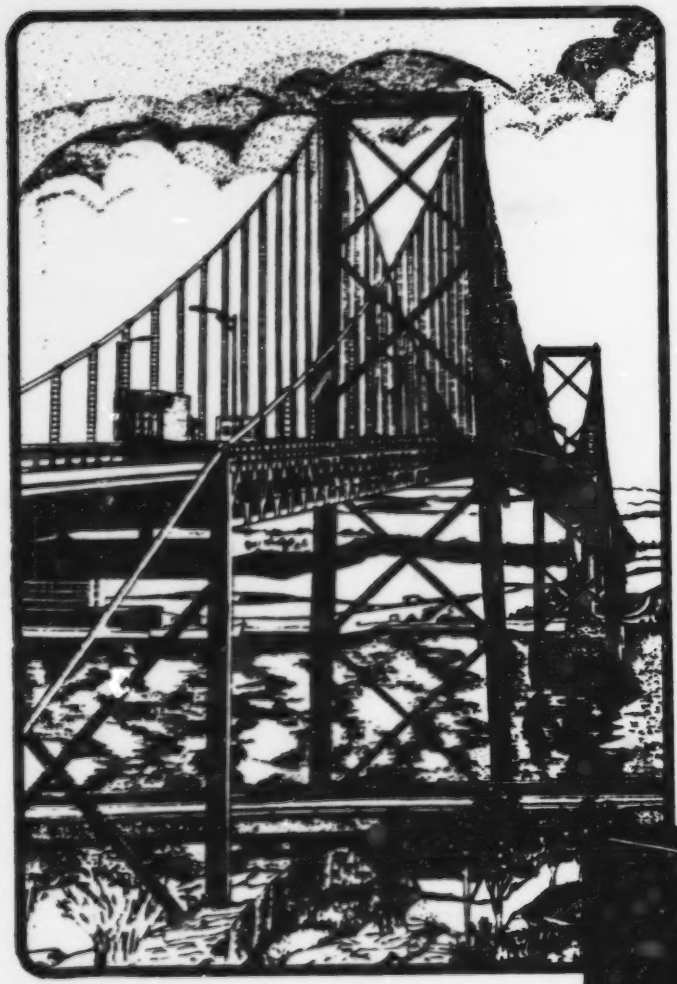

A Halifax / Dartmouth Regional Transportation Report

Main Report

A Halifax / Dartmouth Regional Transportation Report

Honourable Roland J. Thornhill
Minister of Development

Honourable Thomas J. McInnis
Minister of Municipal Affairs

Honourable Jack MacIsaac
Minister of Transportation

Prepared by the Inter-Departmental Committee on Transportation

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April 1984

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Part 1

RECOMMENDATIONS

Executive Summary

INTRODUCTION

An efficient transportation system is vital to the economic development of the Halifax-Dartmouth metropolitan area. In recognition of this fact and in response to growing concern regarding increasing traffic congestion in various locations throughout the area, the Minister of Development, the Honourable Roland J. Thornhill, the Minister of Transportation, the Honourable Jack MacIsaac, and the Minister of Municipal Affairs, the Honourable Thomas J. McInnis, established an Interdepartmental Committee on Transportation, in November of 1983 to:

1. investigate existing transportation problems within the metropolitan area;
2. identify and evaluate potential solutions to these problems; and
3. make recommendations to the government regarding those improvements required in the immediate future.

Background research for this project was conducted largely by Committee members and associated provincial government staff in consultation with officials from the region's four municipal units, the Metropolitan Transit Commission, the Metropolitan Authority and the Halifax-Dartmouth Bridge Commission.

This report represents an overview of the Committee's findings, conclusions and recommendations.

METROPOLITAN AREA TRANSPORTATION PROBLEMS

Transportation problems in the Halifax-Dartmouth area can be classified broadly as automobile related or transit related. Vehicular congestion on several metropolitan area roadways during peak morning and afternoon travel periods is seen, by many, as the most serious of the region's transportation problems.

Areas of extreme vehicular congestion include:

- the Micmac Rotary
- the Macdonald Bridge and approaches

Areas of high vehicular congestion include:

- the MacKay Bridge - ramps on Halifax side
- Barrington Street - Duffus to Seaview Park
- Barrington Street - Cornwallis Street to Artz Street
- Barrington Street - Duke Street to Spring Garden Road
- Bayers Road - Dutch Village Road to Connaught Avenue
- North Street - Gottingen Street to Chebucto Road
- Robie Street - Young Street to Quinpool Road
- Willow Tree Intersection (intersection of Robie, Quinpool, Cogswell and Bell)
- Water Street - Salter Street to Cogswell Street
- Jubilee Road - Preston Street to Connaught Avenue
- Bedford Highway - Bayview Road to Kearney Lake Road
- Herring Cove Road - Old Sambro Road to Armdale Rotary

- the MacKay Bridge - vicinity of Toll Plaza
- Main Street - Caledonia Road to Micmac Rotary
- Portland Street - Victoria Road to Gaston Road
- Cole Harbour Road - Circumferential to Portland Estates

These and other areas of less severe congestion are shown in Figure S1.

Other automobile related issues investigated by the Committee include parking in downtown areas and traffic intrusion into residential areas.

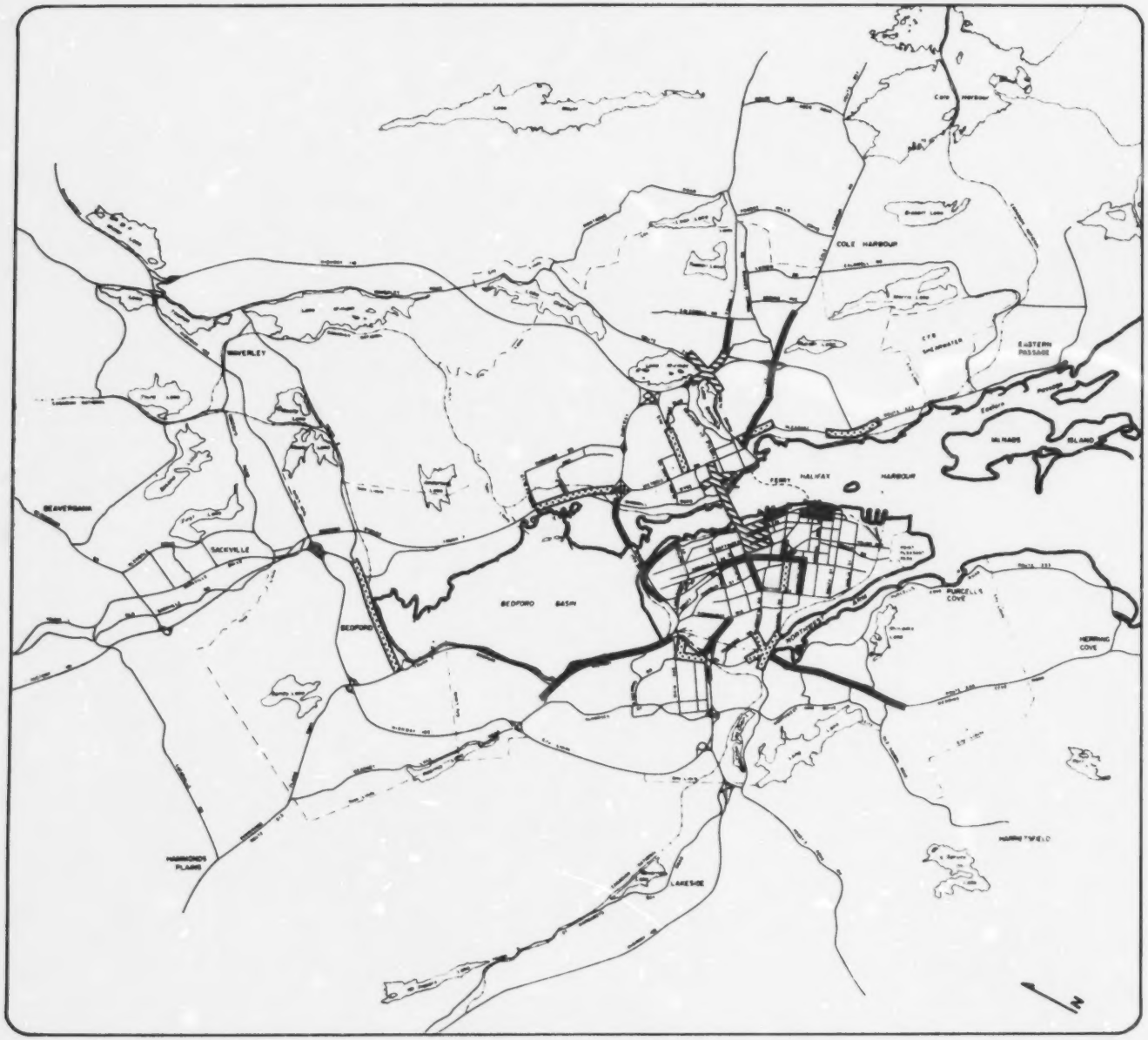
The following transit related concerns have been investigated by the Committee:

- excessive travel times (as compared to the automobile)
- bus overcrowding during peak travel periods
- low service frequencies

POTENTIAL IMPROVEMENT MEASURES

A wide variety of potential improvement measures have been identified and evaluated throughout the course of this study. An evaluation was made of the potential for the following measures to relieve metro area transportation problems by enabling and encouraging the use of travel modes other than the private automobile:

- implementation of additional express commuter bus services
- exclusive bus lanes



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

LEGEND

- EXTREME LEVEL OF CONGESTION
- HIGH LEVEL OF CONGESTION
- MODERATE LEVELS OF CONGESTION

Prepared for: Inter-Departmental Committee on Transportation

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

FIGURE SI

AREAS OF VEHICULAR CONGESTION

- park-and-ride
- Woodside-Halifax ferry service
- Bedford-Halifax hovercraft service
- commuter rail service

Measures considered for their potential to enhance the movement of passenger vehicles throughout the metropolitan area included:

- computerized traffic control
- one-way peak period traffic flow on the Macdonald Bridge
- various roadway construction/reconstruction projects

The concept of variable work hours was investigated as a means of alleviating peak period congestion by reducing the number of persons traveling during extreme peak periods.

The potential for minimizing future transportation facility costs through long-range regional land use planning has been considered as well.

CONCLUSIONS

General

1. An efficient transportation system is vital to the region's economy.

2. For the most part, the region's transportation system has provided relatively high levels of mobility to residents of and visitors to the region.

3. There are, however, a number of mobility problems being experienced at the present time, many of which are associated with roadway congestion during the peak morning and afternoon travel periods.

4. There are a variety of measures that can be utilized to relieve congestion problems throughout the metropolitan area:

   - measures designed to reduce dependence on the private automobile
   - measures designed to improve automobile flow
   - measures designed to reduce peak period travel

Reduced Automobile Dependence

5. Of the measures designed to reduce private automobile use in the region, the following are considered to have the greatest potential:

   - increased express commuter bus services
   - exclusive bus lanes
   - Woodside-Halifax ferry service

6. In some of the more densely developed parts of the region (i.e., much of Halifax peninsula), roadway construction/reconstruction is and will be a prohibitively expensive and disruptive means of dealing with present and future congestion problems. The most cost effective long-term means of dealing with this situation is to achieve greater efficiency from the existing roadway system. Increased commuter transit ridership is one way of achieving this goal. The most effective way of increasing commuter transit ridership is through implementation of new express bus services during peak travel periods.

7. Inter-municipal cost sharing of transit services has been a very contentious issue over the past three years. This situation is having a negative impact on the overall level of transit service in the region.

8. Increased transit ridership will contribute to the relief of parking problems in both downtown Halifax and Dartmouth.

9. An exclusive bus lane at the Macdonald Bridge toll plaza is considered a cost effective means of reducing travel times for the 2,000 or so persons commuting by transit between Dartmouth and Halifax on a daily basis.

10. A Woodside-Halifax ferry service would have the following immediate benefits:

- improved commuting travel times for persons living in the Woodside, Cole Harbour, Forest Hills, Colby Village, Eastern Passage, and Eastern Shore areas and working in downtown Halifax

- reduced traffic congestion on Portland Street

- reduced parking demand in downtown areas of Dartmouth and Halifax

11. The major long-term benefit of increased ferry service between Halifax and Dartmouth is the prolongation of the useful life of existing harbour bridges.

12. High speed ferry service operating between Bedford and downtown Halifax would be incapable of providing any improvement in home-to-work travel times for Bedford/Sackville residents, nor would such a service be competitive on a cost per passenger basis with existing or improved express bus services. Therefore, high speed ferry service between Bedford and Halifax is definitely not feasible at the present time.

13. Commuter rail service within the metropolitan area is not feasible at the present time, nor is it likely to become so in the foreseeable future. Express bus operations are capable of providing a higher level of service at a much lower cost per passenger.

14. On the basis of past experience in the Sackville area, it is concluded that park-and-ride services do not offer great potential for helping to resolve metro area congestion problems. However, further study of this measure is in order.

Improved Automobile Flow

15. Computerized area traffic control is considered to be the most cost effective means of improving automobile flow throughout the region. Anticipated benefits such as improved travel times (20 to 30 percent), fewer accidents and reduced fuel consumption will accrue to all segments of the traveling public.

16. Notwithstanding the preceding opportunities for relieving traffic congestion throughout the metropolitan area, it will be necessary to make a number of improvements to the region's roadway system within the next 5 years. (Refer to Figure S2.) In order to effect these and other improvements, a high level of cooperation between provincial and municipal governments will be required.

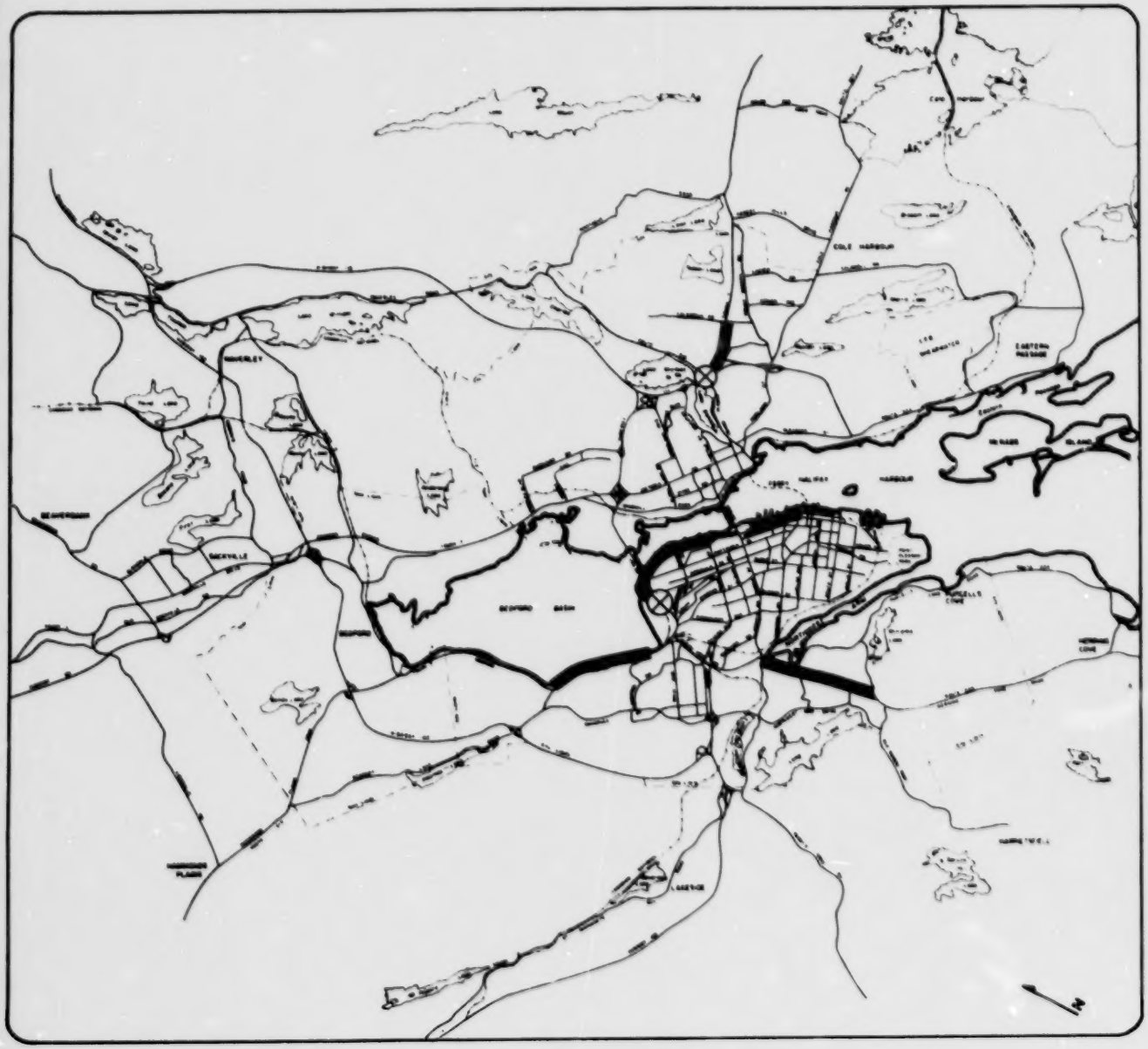
17. The following roadway improvements should be carried out immediately:

- widening of Barrington Street between the Cogswell Street Interchange and Artz Street
- widening of Robie Street approach ramp to the MacKay Bridge

These relatively low cost improvements would have a major impact immediately upon completion.

18. The following roadway improvements are required within the next 5 years:

- widening of Barrington Street from Devonshire Avenue to the MacKay Bridge ramps
- reconstruction of the Robie Street exit ramp from the MacKay Bridge



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

TYPE OF IMPROVEMENT

WIDEN EXISTING ROADWAY

RECONSTRUCTION

Prepared for: Inter-Departmental Committee on Transportation

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

FIGURE S2

ROADWAY IMPROVEMENTS REQUIRED WITHIN NEXT 5 YEARS

- widening of Bedford Highway from Kearney Lake Road to Bayview Road
- widening of Herring Cove Road from Williams Lake Road to the Armdale Rotary
- interchange to replace the Micmac Rotary
- widening of Main Street from the Micmac Rotary to Caledonia Road

19. Traffic congestion on Portland Street could be relieved substantially with improvements to the Micmac Rotary and Main Street and/or the implementation of a new ferry service between Woodside and Halifax. In the event that neither of these projects is undertaken, widening of Portland Street between Alderney Drive and Gaston Road will be required.

20. Congestion problems on Bayers Road are somewhat related to the congestion situation on the ramps to and from the MacKay Bridge in Halifax in that both constitute major routes into the peninsular area for traffic from points west and north of Halifax. Improvements to MacKay Bridge ramps would delay, for some time, the need for improvements to Bayers Road. In any event, widening of Bayers Road will likely be required before 1995.

21. Widening of Herring Cove Road from Sussex Street to Halifax City limits will be necessary within the next 10 years.

22. If past population growth trends continue into the future, and if there are no substantial increases in the rate of growth of cross harbour transit and ferry

ridership, existing harbour bridge capacity will be reached by approximately 1995. This situation will require detailed study in coming years.

23. A third harbour bridge crossing in the vicinity of George's Island, at an estimated cost of 200 million 1984 dollars, would contribute significantly to the relief of many congestion problems caused by cross harbour traffic throughout the metropolitan area.

24. A bridge across the Northwest Arm (estimated to cost 50 million 1984 dollars) would be beneficial to many travelers. However, Northwest Arm Drive as well as recent and planned improvements to the Herring Cove Road will reduce the need for such a facility. The disruptive impact of such a facility in the south end of Halifax peninsula could be substantial. On the basis of past growth trends, however, such a facility will not be required within the next 10 years.

25. The provincial government can, through provincial land use policies (and supporting land development programs) similar to those contained in the Halifax-Dartmouth Regional Development Plan, influence the pattern of development in the region such that:

- maximum benefit or return is gained from past investments in the region's transportation system; and,

- the need for capital intensive facilities such as a third harbour bridge crossing and a bridge across the Northwest Arm could be delayed for a number of years beyond the point in time they might otherwise be required.

Reduced Peak Period Travel

26. Major employers in the Halifax-Dartmouth area should be encouraged to adopt variable work hour policies as a means of relieving peak hour congestion problems in the metropolitan area.

Downtown Parking

27. While the location of short-term parking space causes some inconvenience, there is no major shortage of parking space in the downtown areas of Halifax and Dartmouth. In view of the rapid rate of commercial development in the downtown area, this issue requires detailed study and close monitoring in coming years.

Future Transportation Planning

28. There is a strong need for continuing and coordinated provincial government involvement in regional transportation planning and management. The most appropriate means of maintaining this level of involvement is through the establishment of an urban transportation planning and management centre within the Department of Transportation. The centre should be assisted by a regional transportation advisory committee, comprised of representatives of several provincial government departments and municipal units, as well as boards and commissions involved in providing transportation services in the region.

RECOMMENDATIONS

The Inter-Departmental Committee on Transportation recommends that:

1. The Metropolitan Transit Commission bus fleet be increased by 24 vehicles over the next 5 years and that these new vehicles be utilized solely for express commuter bus services.

2. The Angus L. Macdonald Bridge toll plaza be modified to provide an exclusive lane for transit vehicles.

3. A new passenger ferry service between Woodside and Halifax be implemented.

4. Traffic signal systems throughout metro be upgraded to provide for centralized computer-based traffic control.

5. Design and construction of the following roadway improvements commence immediately:

    1. widening of Barrington Street between the Cogswell Street Interchange and Artz Street; and

    2. widening of the Robie Street approach ramp to the MacKay Bridge.

6. Design work on the following roadway improvements begin as soon as possible in order that improvements may be completed within the next five years:

- widening of Barrington Street from Devonshire Avenue to the MacKay Bridge ramps

- reconstruction of the Robie Street exit ramp from the MacKay Bridge

- widening of Bedford Highway from Kearney Lake Road to Bayview Road

- widening of Herring Cove Road from Williams Lake Road to the Armdale Rotary

- construction of an interchange to replace the Micmac Rotary

- widening of Main Street from the Micmac Rotary to Caledonia Road

7. A thorough study of downtown parking be completed within the next 6 months.

8. New land use policies (i.e., a revised Halifax-Dartmouth Regional Development Plan) be prepared and adopted by the provincial government in order to ensure that future development in the region occurs in a manner such that past investment in transportation infrastructure is optimized and future investment requirements are minimized while continuing to ensure high levels of mobility.

9. The provincial government establish an urban transportation planning and management centre within the Department of Transportation with specific responsibility for overseeing the implementation of this report's

recommendations and carrying out urban transportation planning and management responsibilities for the metropolitan area on a continuing basis.

10. A regional transportation advisory committee representing the Departments of Municipal Affairs, Transportation, and Development, the region's four municipal units, and other metro area transportation related boards and commissions be established to provide ongoing input to the urban transportation planning and management centre.

COST SUMMARY

The following table provides a summary of estimated costs associated with each of the previously recommended transportation improvements. For the non-roadway construction improvements, annual operating costs are net of estimated user revenue. Annual maintenance costs for improved roadways are not expected to be substantially different from present costs and therefore have not been included in this presentation.

The capital cost of transportation system improvements recommended for the metropolitan area over the next 5 years will amount to approximately 55 million dollars. Annual operating costs (net of user revenue) associated with these improvements will increase by nearly 1 million dollars per annum. Of the 55 million dollar capital investment requirement, roadway construction/reconstruction will amount to 42 million dollars.

Table S 1

0 - 5 YEAR IMPROVEMENT COST ESTIMATES

	Improvement Project Description	Capital Cost	Annual Operating Costs[1]
1.	24 New Transit Vehicles	$ 4,000,000	$ 500,000
2.	Exclusive Bus Lane - Macdonald Bridge Toll Plaza	25,000	--
3.	Woodside-Halifax Ferry Service	7,000,000	100,000[2]
4.	Computerized Area Traffic Control	2,000,000	300,000
5.	Barrington St. widening - Cogswell Street to Artz Street	500,000	--
6.	Widening of Robie Street approach ramp to MacKay Bridge	500,000	--
7.	Barrington St. widening - Devonshire Avenue to MacKay Bridge ramps	4,000,000	--
8.	Reconstruction of Robie Street exit ramp from MacKay Bridge	4,000,000	--
9.	Bedford Highway widening - Kearney Lake Rd. to Bayview Rd.	4,000,000	--
10.	Herring Cove Road widening - Williams Lake Road to Armdale Rotary	10,000,000	--
11.	Interchange to replace Micmac Rotary	16,000,000	--
12.	Main Street widening - Caledonia Road to Micmac Rotary	3,000,000	--
	TOTAL	$ 55,025,000	$ 900,000

[1]Annual costs shown are net of direct user revenue received.

[2]Deficit for existing ferry operation will increase by approximately $80,000, also, because of ridership diversion to Woodside-Halifax service.

IMPLEMENTATION

No attempt has been made to develop a comprehensive implementation schedule for the projects identified in Table S1. However, from a cash flow perspective, there is ample flexibility for developing an implementation schedule that will spread the 55 million dollar capital expenditure requirement evenly over the next 5 year period (i.e., 11 million dollars per year).

Part 2

THE STUDY

1. INTRODUCTION

The Inter-Departmental Committee on Transportation was formed in November of 1983 by the Minister of Development, the Honourable Roland J. Thornhill, the Minister of Transportation, the Honourable Jack MacIsaac, and the Minister of Municipal Affairs, the Honourable Thomas J. McInnis, in response to growing concern over traffic congestion at various locations throughout the Halifax-Dartmouth metropolitan area. In recognition of the fact that an efficient urban transportation system is vital to the economic development of the region's municipalities and the Province as a whole, the Committee was given a mandate to:

1. Examine existing problems associated with the movement of people throughout the region, particularly during the peak morning and afternoon travel periods;

2. Identify potential solutions to the problems identified in (1);

3. Evaluate potential solutions and make appropriate recommendations to the government regarding those improvements deemed necessary in the near future; and

4. Report its findings to the Ministers at the end of March, 1984.

The Committee was specifically requested to consider high-speed ferry service as one means of improving commuter travel times between Bedford and Halifax, and also between Woodside and Halifax.

On the basis of instruction provided by the Ministers, the Committee, comprised initially of senior staff from the Departments of Development, Transportation, and Municipal Affairs (and later joined by a representative of Policy Board) developed a work program to guide its activities on a day-to-day basis. (See Appendix A)

At the outset of the study, the Committee consulted extensively with representatives of the region's four municipal units as well as with officials of the Metropolitan Transit Commission, the Metropolitan Authority and the Halifax-Dartmouth Bridge Commission. Valuable input was received during and following these initial consultations. With the exception of consulting assistance for the Commuter Rail Update study, all of the work involved in producing this report was carried out with internal government resources.

This report provides an overview of the Committee's findings as well as its conclusions and recommendations.

2. STUDY AREA OVERVIEW

2.1 Introduction

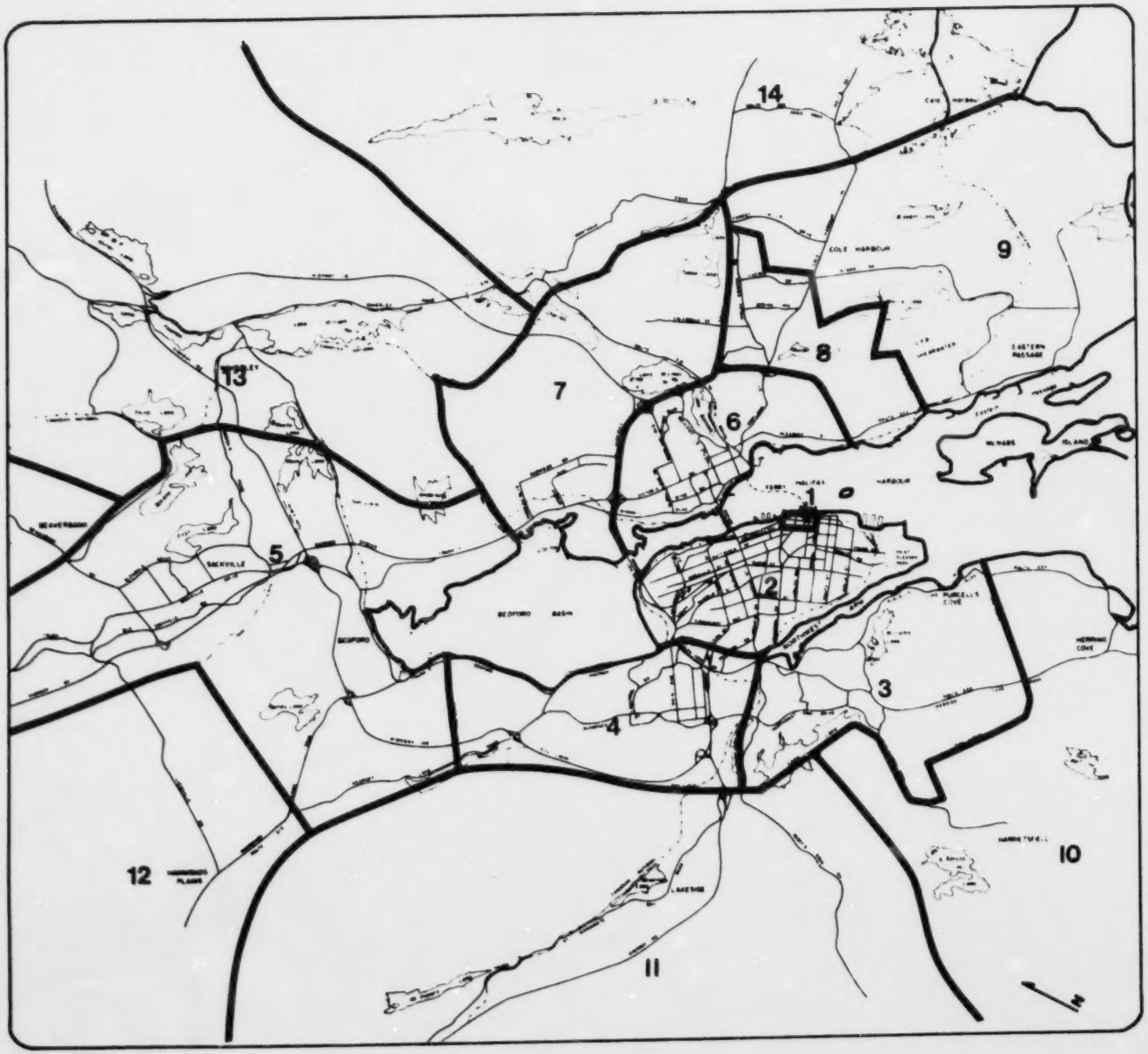
The transportation planning process relies heavily upon measurable and observed characteristics of an area's demography and transportation system. The following information forms the basis for research undertaken as a part of this study:

- population and employment
- existing transportation system
- existing travel patterns

In order to facilitate an analysis of these characteristics, the study area has been divided into nine sub-areas or traffic zones, as shown in Figure 2.1. This figure also shows that the area external to the study area has been divided into zones. This will facilitate the analysis of travel demand originating in or destined to locations outside the study area.

2.2 Demographic Characteristics

Table 2.1 gives a breakdown of 1981 study area population and employment by traffic zone.



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

LEGEND

Traffic Zone Boundaries

8 Traffic Zone

Prepared for: Inter-Departmental Committee on Transportation

Date:

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

Figure 2.1
Traffic Zones

Table 2.1

STUDY AREA DEMOGRAPHIC CHARACTERISTICS

Traffic Analysis Zone	1981 Population	1981 Employment
1	953	18,319
2	61,881	57,050
3	20,492	2,991
4	30,011	7,020
5	28,320	7,448
6	34,320	13,504
7	13,205	10,818
8	15,639	4,892
9	18,383	4,012
	223,204	126,054

Many of the problems associated with the movement of people and goods throughout the metropolitan area are directly related to the study area's unique geographic and demographic environment. For example, with 60 percent of the study area's labour force employed within an area virtually surrounded by water (Halifax Peninsula) and over 70 percent of the study area's population residing on the mainland (off the peninsula), it is not surprising that peninsular access has been and will continue to be one of the foremost transportation problems and challenges for provincial and municipal decision makers.

2.3 Transportation Facilities and Services

The region's transportation system, from the perspective of people movement, is comprised of:

- an extensive highway and street network (including bridges)
- a regional transit system
- a cross-harbour ferry service

With a few notable exceptions, the region is relatively well served by an extensive network of arterial, collector, and local streets.

The region's public transit system consists of approximately 140 buses providing service on 36 routes throughout the study area. Routes are classified as Regular Service or Express Service. Buses on the region's 30 Regular Service routes operate throughout the day at frequencies ranging from 7 to 60 minutes. Express services operate during peak morning and afternoon weekday travel periods only. The service is owned and operated by the Metropolitan Transit Commission. Provincial government funding for public transit in 1983 amounted to approximately one million dollars in capital assistance (vehicle purchase) and an equal amount in operating assistance.

Ferry service between downtown Halifax and downtown Dartmouth is comprised of two 400 passenger vessels providing 15 minute to one-half hour service for nearly 18 hours on every weekday. The service is owned and operated by the City of Dartmouth with financial assistance from the provincial government amounting to just over $500,000 annually.

2.4 Existing Travel Patterns

On an average weekday in 1983, approximately 550,000 person trips are made within the study area. During each of the morning and afternoon peak travel periods, approximately 125,000 trips are made.

Table 2.2 gives a breakdown of person travel by the three primary transportation modes available within the study area as a whole and within two subsections of the study area (Halifax Peninsula and Halifax CBD).

Table 2.2

ESTIMATED 1983
MODAL SHARES OF METROPOLITAN AREA PERSON TRIPS

	Avg. Weekday	Peak Morning Travel Period		
Mode	Total Study Area	Study Area	Peninsula	Downtown Hfx.
Auto	490,000 (89.7)	107,000 (85.7)	49,000 (79.5)	10,000 (67.3)
Public Transit	50,000 (9.2)	16,000 (12.8)	10,800 (17.5)	3,200 (21.6)
Ferry	6,500 (1.1)	1,850 (1.5)	1,850 (3.0)	1,650 (11.1)
Total	546,500 (100%)	124,850 (100%)	61,650 (100%)	14,850 (100%)

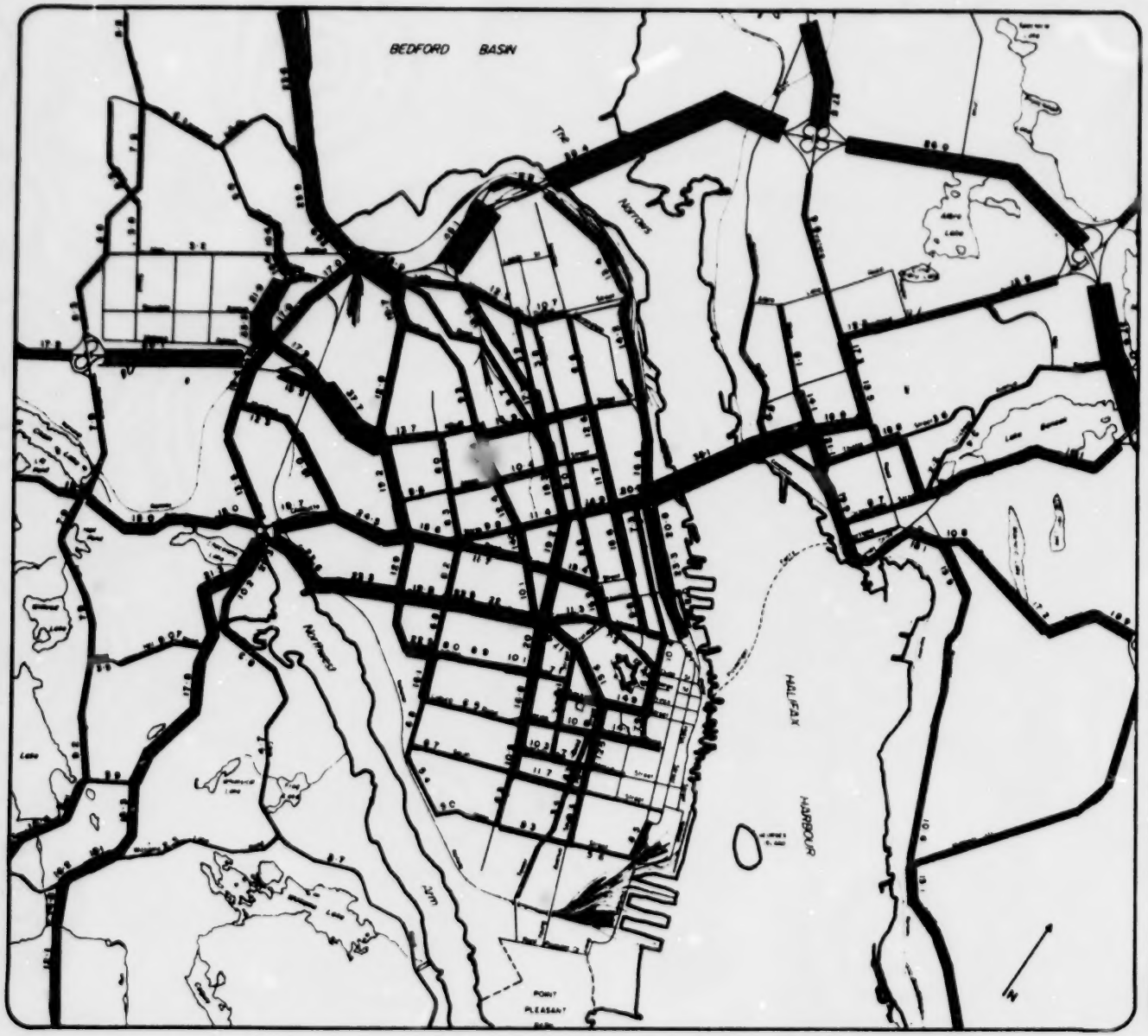
Of particular interest is the fact that the importance of the public transit and ferry modes of travel increase significantly as one approaches the downtown area of Halifax. For example, while public transit's share of travel throughout the entire

study area amounts to approximately 12.8 percent during the peak morning travel period, its share of downtown oriented trips only, is nearly double this amount.

Average daily vehicular traffic volumes on a major portion of the region's highway and street network are depicted graphically in Figures 2.2 and 2.3. Among the most heavily traveled portions of roadway in metro are:

- the A. Murray McKay Bridge (34,600 vpd)
- the Angus L. Macdonald Bridge (33,400 vpd)
- Bayers Road - between Romans and Connaught (30,000 vpd)
- Fairview Overpass (35,900 vpd)
- Circumferential Highway - between Micmac Blvd. and the Micmac Rotary (45,100 vpd)

The variation in travel over an average 24 hour weekday period, as depicted in Figure 2.4, provides a great deal of insight into the nature of travel demand within the study area. Transportation facilities and services must be designed to accommodate peak traffic levels which occur on a regular weekday basis between 7:00 a.m. and 9:00 a.m., and 3:30 p.m. and 5:30 p.m. in the evening.



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

SCALE

50 40 30 20 10 5

Veh / Day (Thousands)

Prepared for: Inter-Departmental Commitee on Transportation

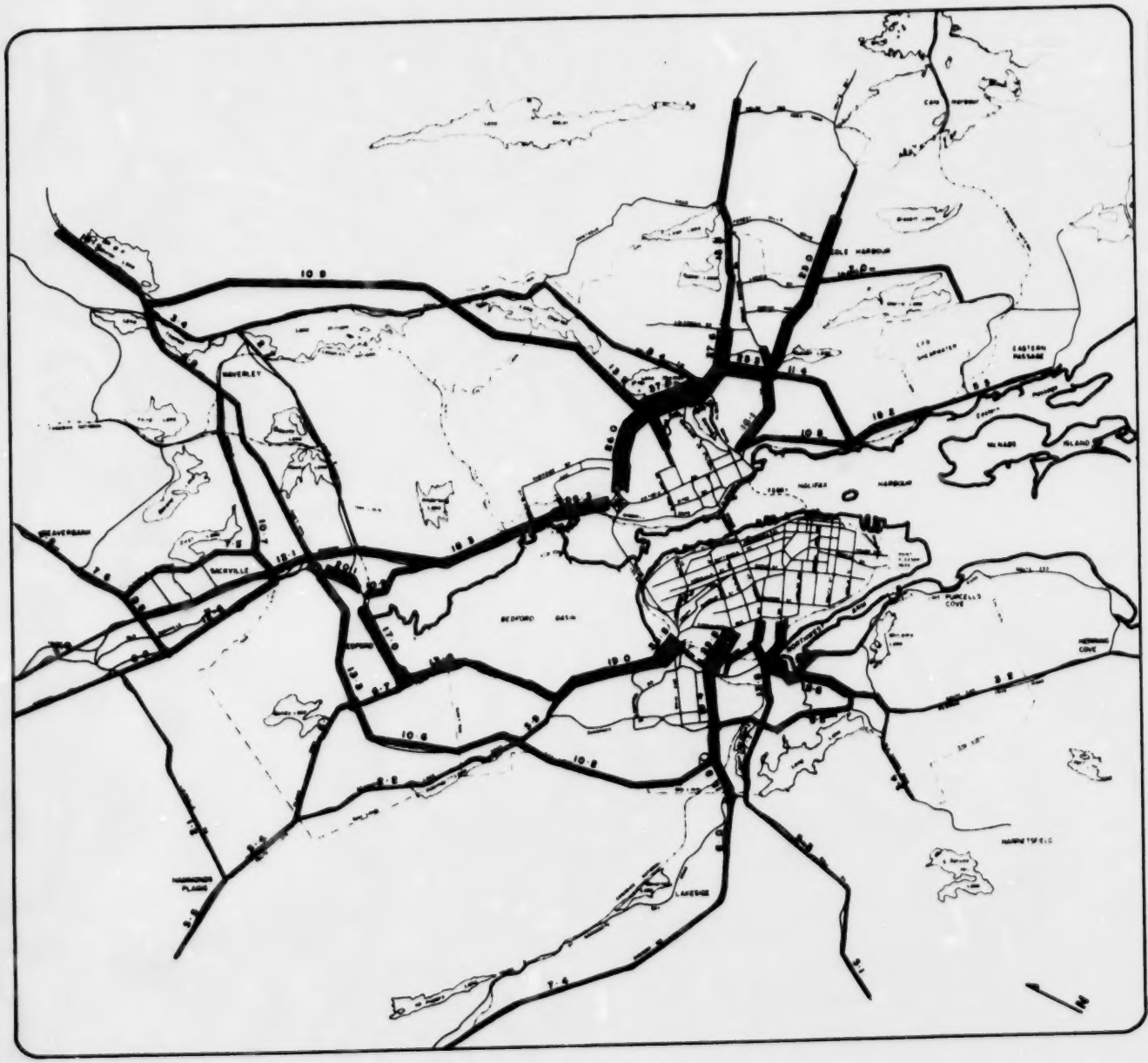
Date:

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

Figure 2.2
Average Daily Vehicular Traffic Volumes - Urban Area



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

LEGEND

Vehicles / Day (Thousands)

Prepared for: Inter-Departmental Committee on Transportation

Date:

Nova Scotia Department of Development

Nova Scotia Department of Transportation

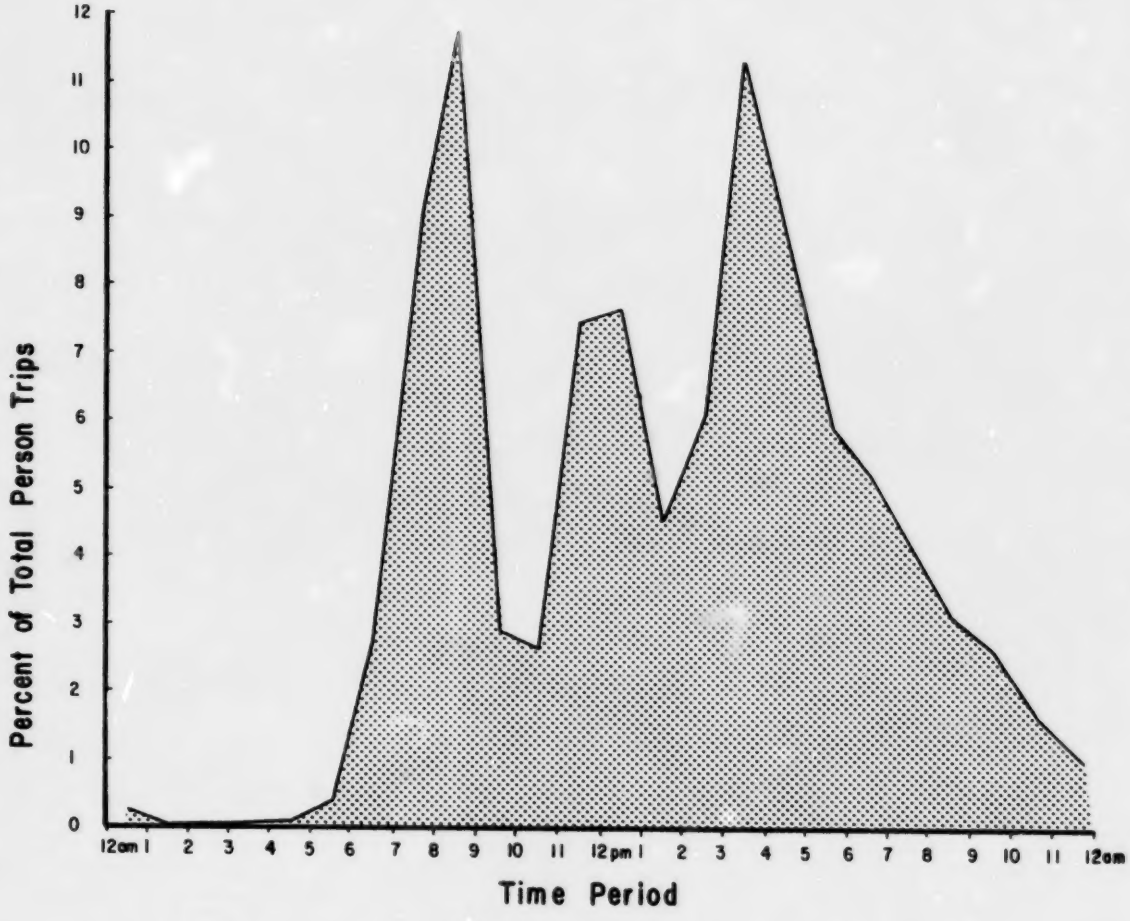
Nova Scotia Department of Municipal Affairs

Figure 2.3

Average Daily Vehicular Traffic Volumes Urban Fringe Area

Figure 2.4

Average Weekday Hourly Metro Travel Patterns



3. METROPOLITAN AREA TRANSPORTATION PROBLEMS

3.1 Introduction

During the process of identifying metropolitan area transportation problems, input was received from a variety of individuals and organizations, namely:

- committee members and associated staff
- representatives of the region's four municipalities
- officials from the Metropolitan Transit Commission, Metropolitan Authority and the Halifax-Dartmouth Bridge Commission

Problems identified as a result of this consultative process will be described in the following paragraphs under the headings:

- automobile related problems
- public transit related problems

3.2 Automobile Related Problems

Problems associated with the movement and storage of passenger automobiles throughout the metropolitan area fall into one of at least three categories:

- roadway congestion
- parking supply and cost
- traffic intrusion into residential areas

3.2.1 Roadway Congestion

Roadway congestion occurs in areas where travel demand exceeds roadway or intersection capacity. The capacity of an urban street network is constrained by a number of factors such as:

- pavement widths
- on-street parking
- commercial traffic (trucks)
- traffic control devices and regulations

Areas of vehicular congestion throughout the study area have been identified and rated according to their degree of severity. **Areas of extreme congestion** include:

- the Micmac Rotary
- the Macdonald Bridge and approaches

Portions of the metropolitan area's roadway system experiencing **high levels of congestion** include:

- the MacKay Bridge - ramps on Halifax side
- Barrington Street - Duffus Street to Seaview Park
- Barrington Street - Artz Street to Cornwallis Street
- Barrington Street - Duke Street to Spring Garden Road
- Bayers Road - Dutch Village Road to Connaught Avenue
- North Street - Gottingen Street to Chebucto Road
- Robie Street - Young Street to Quinpool Road

- Willow Tree Intersection (intersection of Robie, Quinpool, Cogswell, and Bell)
- Water Street - Salter Street to Cogswell Street
- Jubilee Road - Preston Street to Connaught Avenue
- Bedford Highway - Bayview Road to Kearney Lake Road
- Herring Cove Road - Old Sambro Road to Armdale Rotary
- the MacKay Bridge - vicinity of Toll Plaza
- Main Street - Caledonia Road to Micmac Rotary
- Portland Street - Victoria Road to Gaston Road
- Cole Harbour Road - Circumferential to Portland Estates

Note that the above congestion problems have not been ranked in order of seriousness.

Areas presently experiencing **moderate levels of congestion** include:

- the Armdale Rotary and approaches
- Dutch Village Road - Joseph Howe Drive to Titus Street
- Quinpool Road - Robie Street to Connaught Avenue
- Romans Avenue - Mumford Road to Bayers Road
- Pleasant Street - intersection with Circumferential
- Pleasant Street - intersection with Portland Street
- Woodland Avenue - Pinehill Drive to Victoria Road
- Windmill Road - Victoria Road to Alderney Drive
- Bedford Highway - Hammonds Plains Road to Bedford Place Mall

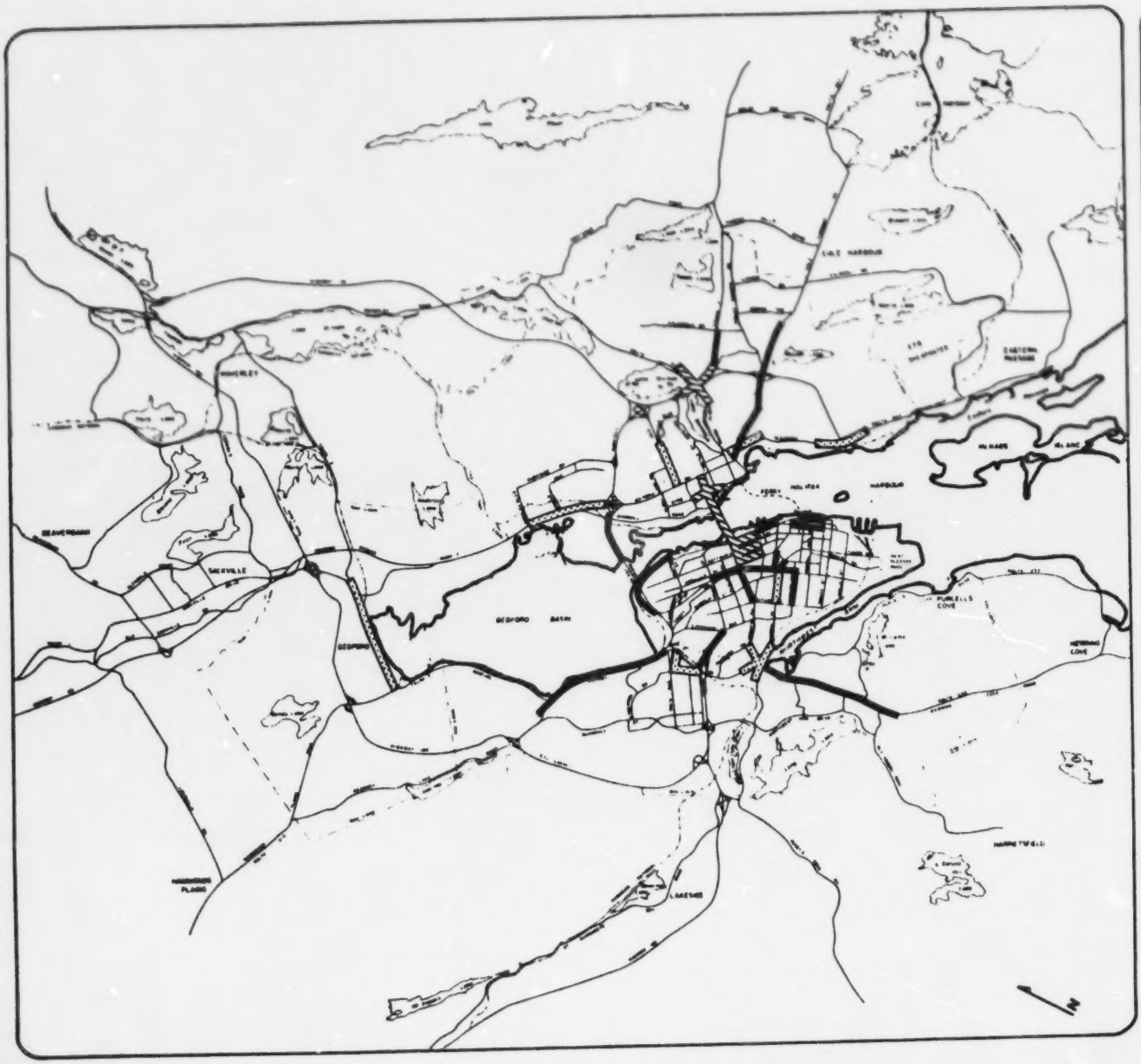
The above noted areas of roadway congestion are depicted graphically in Figure 3.1. The following observations have been made on the basis of research conducted for this study and relate specifically to peak travel periods:

- The physical capacity of the Angus L. Macdonald Bridge has been reached.

- On the basis of past trends, the vehicular capacity of the A. Murray MacKay Bridge itself will be reached before the year 2000. Improvements to ramp and toll plaza capacity will be required soon in order for that capacity to be achieved.

- Vehicular traffic from residential areas in the eastern portion of Dartmouth and beyond, into the metropolitan area is severely restricted along Main Street, at the Micmac Rotary and along Portland Street. The Highway 107 ByPass will attract a substantial volume of traffic. However, in the next few years it is expected that continued high residential growth in some areas of east Dartmouth (and immediately adjacent areas of Halifax County) will be accompanied by a substantial increase in east-west vehicular traffic through the City of Dartmouth. As a result of this growth, within the next five years the congestion problem at the Micmac Rotary will once again reach extreme proportions.

- Access to Halifax from the Bedford-Sackville area and points west does not pose any major problem at the present time as far as roadway capacity is concerned. This situation will eventually deteriorate with increased residential development in the latter areas. As congestion at the MacKay Bridge increases, traffic from the Bedford-Sackville area will be diverted to the Bedford Highway and the Bicentennial Highway



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

LEGEND

- EXTREME LEVEL OF CONGESTION
- HIGH LEVEL OF CONGESTION
- MODERATE LEVELS OF CONGESTION

Prepared for: Inter-Departmental Committee on Transportation

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

FIGURE 3.1
AREAS OF VEHICULAR CONGESTION

(Highway 102), placing increased pressure on land based peninsular access routes.

- Peninsular access by automobile from Halifax mainland north is not expected to reach a critical stage for some time due in large part to recent roadway construction including Dunbrack Street and the Fairview Overpass. While Bayers Road between Joseph Howe Drive and Connaught Avenue will continue to be a major congestion point, it is expected that mainland north residents traveling to and from points on the peninsula will make adjustments in their travel patterns in order to take advantage of less congested routes.

- Vehicular congestion along Bayers Road and at the Armdale Rotary will grow in direct proportion to the rate of residential development in areas south of the Northwest Arm (i.e., Halifax South, Herring Cove) and west of the City of Halifax (i.e., Lakeside-Timberlea-St. Margarets Bay). While this situation is not expected to reach critical proportions in the near future (0 - 5 years), future transportation planning must take into account the inevitability of a major vehicular congestion problem in this area.

- Vehicular movement is restricted due to congestion at several points throughout peninsular Halifax leading one to conclude that improving peninsular access by automobile will shift the primary problem from one of access to the peninsula to one of access to the specific areas within the peninsula (i.e., the downtown area).

Given the potentially disruptive effects of any form of roadway construction on the peninsula, it is likely that vehicular movement on the peninsula will become the ultimate long-term transportation challenge facing planners and decision makers in the region.

3.2.2 Downtown Parking - City of Halifax

Parking in downtown Halifax has been a controversial issue for many years. The desires of motorists seeking inexpensive, conveniently located parking space in the downtown area appear, in many ways, to be diametrically opposed to City of Halifax parking supply policies aimed at discouraging private automobile usage in the downtown, in favour of increased public transit utilization. On the basis of recent parking statistics[1], it can be concluded that:

- presently there is no overall shortage of parking space in downtown Halifax, however, the distribution of short-term parking space is such that access to some downtown businesses is difficult (particularly Historic Properties and Spring Garden Road); and

- parking prices in the downtown area of Halifax are very reasonable both in comparison to prices charged in other Canadian cities and the cost of constructing new parking facilities.

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[1]Downtown Parking Study, Planning Department, City of Halifax, November, 1982.

3.2.3 Downtown Parking - City of Dartmouth

A recent study of parking in Dartmouth[1] concluded that the supply of parking in the downtown area was roughly equivalent to demand. The fact that the waiting list for ferry terminal parking is in excess of 100 persons might appear to contradict this conclusion somewhat. However, it is not known what portion of this unsatisfied demand consists of persons not presently using the ferry who would do so if parking were available. In any event, a shortage of parking space for ferry commuters is not entirely bad, since potential parkers are encouraged to make use of the public transit system.

3.2.4 Residential Neighbourhood Intrusion

In many parts of the region, streets designed for local use (i.e., by residents of a particular area) are being used as through traffic routes. This problem is particularly acute in Dartmouth where, in an effort to avoid congestion associated with the Micmac Rotary, travelers attempt to find "short cuts" through residential areas of the City. In nearly all instances, the problem of through traffic on local streets is directly attributable to the existence of a major congestion problem on an adjacent arterial roadway (i.e., the Micmac Rotary). Solving the latter problem will, in all likelihood, result in the disappearance of the former.

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[1] People and Parking - Dartmouth Downtown Parking Study, Planning & Development Department, City of Dartmouth, March, 1982.

3.3 Public Transit Related Problems

Unfortunately, there are few widely accepted standards against which the performance of the region's public transit system can be compared in order to identify problems with the service. Given the benefits of increased public transit utilization (prolonged life of roadway facilities, less space required for parking, reduced energy consumption, etc.), it can be argued that any factor that mitigates against increased transit ridership should be considered a potential problem area. On the basis of commonly heard complaints regarding public transit service in the metropolitan area, the following might be considered as problems:

- excessive travel times (as compared to private automobile)
- bus overcrowding during peak travel periods
- low frequency of service

Each of these perceived problems is given further consideration in the following paragraphs. A fourth problem, that of regional transit decision making is considered as well.

3.3.1 Excessive Transit Travel Time

The public transit system frequently comes under criticism by virtue of the fact that it is seldom capable of offering travel times comparable to those of the private automobile. Travel time delays typically result from one or more of the following:

- frequent stops to pick up/discharge passengers
- a requirement to transfer from one bus route to another

- roadway congestion caused by the private automobile
- circuitous bus routing

Metropolitan transit travel times are typically in the order of 25 to 50 percent greater than automobile travel times.

3.3.2 Bus Overcrowding

With few exceptions, all Metro Transit buses operate at or above capacity during the peak morning and afternoon travel periods. It is argued by some that the problem of overcrowding on buses during the peak travel period is resulting in significant numbers of persons being discouraged from utilizing the transit system.

3.3.3 Low Service Frequency

A recent survey of transit riders in the metro area revealed that many people are dissatisfied by the long waiting times between bus arrivals (headway). This problem may be somewhat of a deterrent to increased transit ridership.

3.3.4 Regional Transit Decision Making

Over the past few years, the issue of inter-municipal sharing of the 5 million dollar annual operating deficit has become a major source of contention between the four municipalities of the region. Lack of resolution of this issue is contributing to an overall deterioration of cooperation between the region's municipalities on most, if not all, issues relating to the provision of public transit service in the region. This

situation undoubtedly has and will continue to negatively affect the overall level of transit service in the region. Certainly, there will be no major expansion of transit services in the region until the matter of transit decision making (cost sharing) is resolved.

4. POTENTIAL IMPROVEMENT MEASURES

4.1 Introduction

A wide variety of potential improvement measures have been identified throughout the course of this study and will be considered in this section of the report under the following headings:

1. Measures designed to reduce dependence on and use of the private automobile;
2. Measures designed to improve automobile flow;
3. Measures designed to reduce peak period travel; and,
4. Measures designed to ensure an adequate supply of parking space.

It should be noted that within the time frame available for this study, it was not possible to thoroughly investigate each and every potential improvement measure. Primary emphasis has been placed on those projects which:

- were identified as being of specific interest to the Ministers initiating this study;
- were deemed most likely to have the greatest potential for solving the transportation problems identified in the preceding section of this report.

Where possible, an attempt has been made to estimate the following parameters for each of the projects considered:

- Capital costs
- Annual operating costs
- Time required to implement improvement
- Potential impact on metro area commuters

4.2 Measures Designed to Reduce Reliance on the Private Automobile

Measures included in this category are designed to alleviate traffic congestion by reducing the number of private automobiles on the highway (especially during peak periods) through increased utilization of other modes of travel. Some of the measures considered herein have the capability of eliminating private automobile use entirely, while others are designed to eliminate use of the private automobile in heavily congested areas only. Measures designed to reduce dependence on the private automobile include the following:

- Public transit oriented improvements
- Woodside-Halifax ferry service
- Bedford-Halifax hovercraft service
- Commuter rail service

4.2.1 Public Transit Oriented Improvements

The benefits of increased transit ridership to the general public and governments at all levels are considerable. Moving commuters from the private automobile into public transit buses:

- Contributes to prolonging the life of existing roadway facilities thereby optimizing and ultimately reducing public costs associated with the construction of new capital intensive facilities;

- Reduces the demand for downtown parking space, thereby enabling municipal governments to maximize land development opportunities (hence tax revenues) in downtown areas; and,

- Can result in a very significant reduction in energy consumption for transportation purposes.

A number of potential opportunities exist for significantly improving transit service thus increasing public transit ridership within the metropolitan area. These include:

- Additional commuter services
- Bus priority measures
- Park-and-ride

Each of these measures will be given further consideration in the following paragraphs.

Additional Commuter Services

The travel time differential between the transit bus and the private automobile is a highly significant factor in the travel mode selection process. Indeed, one of the most commonly heard complaints about public transit service is that travel times just do not compare favourably with those offered by the private automobile. In the

metropolitan area, travel times by transit bus are typically 25 to 50 percent higher than private automobile travel times.

The simplest and perhaps most cost effective means of improving public transit travel time performance is to implement more express commuter bus services throughout the metropolitan area. In resolving the travel time problem, additional express services will also contribute to an alleviation of bus overcrowding problems noted in Section 3.3 of this report.

The contribution that increased transit service could make towards a resolution of the region's transportation problems is most appropriately viewed from the perspective of modal split. On the basis of existing travel patterns, it is estimated that 12 and 24 new buses, respectively, providing express commuter services into the downtown area of Halifax, will have the following impact:

	% Trips by Transit Bus		
Area of Influence	Existing	With 12 Additional Express Buses	With 24 Additional Express Buses
Region-wide	12.8	14.3	15.7
Halifax Peninsula	17.5	20.4	23.3
Halifax CBD	21.6	30.7	39.7

It is further estimated that, with the implementation of new express commuter services, person trips by automobile would be reduced by the following percentages:

Area of Influence	% Reduction in Person Trips by Automobile	
	With 12 Additional Express Buses	With 24 Additional Express Buses
Region-wide	1.7	3.4
Halifax Peninsula	3.7	7.3
Halifax CBD	18.0	36.3

Twelve additional express buses providing service between Dartmouth and Halifax could result in a 20 percent reduction of vehicular traffic on the Harbour Bridges.

It is clear from the above statistics that the implementation of new express commuter bus services could make a very significant contribution towards the resolution of transportation problems in the metropolitan area.

At the present time, the purchase price of a new 53 seat transit bus is approximately $170,000. In order to expand the Metropolitan Transit Commission's bus fleet by 12 buses (to be used for express commuter services), a capital outlay of roughly 2 million dollars would be required. It is estimated that the annual deficit associated with the operation of these buses would be in the order of $250,000.[1] An addition of 24 new buses would require a capital investment of just over 4 million dollars and would increase public transit's operating deficit by $500,000.

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[1]This assumes the Metro Transit Commission's system wide cost recovery performance of 65 percent would be achieved by new express commuter services.

In addition to the initial capital outlay for buses, the deficit for the operation of public transit services in the region would be increased as follows:

	1984 Projected Operating Deficit
Existing	$5,400,000
With 12 New Buses	5,650,000
With 24 New Buses	5,900,000

A lead time of approximately 12 months would be required in order to put new express commuter services into place.

Bus Priority Measures

A number of opportunities are believed to exist for improving the flow of transit vehicles on existing roadways, thus making travel time by public transit more competitive with the private automobile. Most of these opportunities involve giving some form of priority to transit vehicles (over private automobiles) in congested areas. Throughout the course of this study one specific transit priority opportunity has been considered, that of an exclusive toll lane for buses on the Macdonald Bridge. The identification and investigation of other opportunities will require detailed research beyond the scope of this study.

The cost of modifying the Macdonald Bridge toll plaza to give transit vehicles an exclusive toll lane would be in the order of $25,000. Transit travel times between

the Dartmouth Shopping Centre and Scotia Square could be reduced by as much as 25 percent with such a modification. Roughly 2,000 commuters per day would benefit from this improvement measure. This improvement could be implemented within a period of about 6 months.

Park-and-Ride

Park-and-ride, as the term suggests, refers to a travel arrangement whereby commuters make use of the private automobile for a portion of their trip and the public transit system for the remainder. The location at which a transfer between the two modes takes place is referred to as a park-and-ride lot. The prime benefit of park-and-ride services is a reduction in space required for parking in the downtown area. It is highly unlikely that park-and-ride services would have any noticeable impact on metro area congestion problems.

Park-and-ride takes place, to a limited degree, at several locations in Lower Sackville, including the Downsview Mall parking lot, and a Department of Transportation Park-and-Ride lot near the intersection of the Cobequid Road and Sackville Drive. Fewer than 12 commuters make use of the latter facility on a regular daily basis. Given the attractiveness of this location (i.e., easily accessible, adjacent to a dense travel corridor, adjacent to an express transit route), and the relatively low utilization of this facility, it would appear that the potential for park-and-ride throughout metro is limited. Further study is required.

4.2.2 Woodside-Halifax Ferry Service

On an average weekday, between the hours of 6:30 a.m. and 9:30 a.m., nearly 2,000 people travel from the Woodside, Cole Harbour, Forest Hills, Colby Village, Eastern Passage, and Eastern Shore areas to downtown Halifax. It is estimated that 1,000 of these commuters would utilize a Woodside-Halifax ferry service provided that:

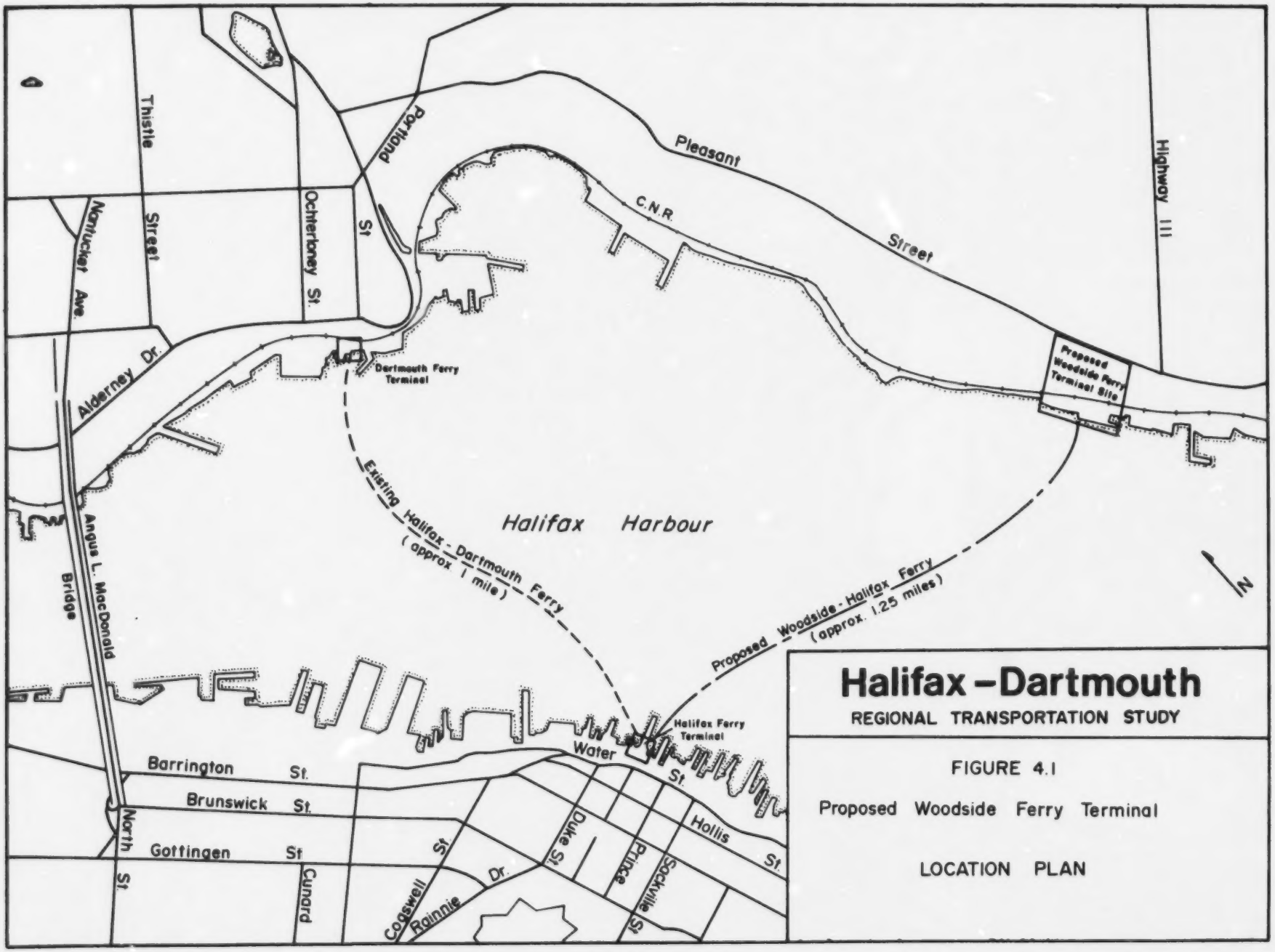
1. an abundant supply of relatively low priced and easily accessible parking spaces was available at the Woodside terminal; and,

2. convenient transit connections between nearby residential areas and the ferry terminal in Woodside were provided.

Initially, a single 400 passenger vessel (similar to existing ferries) providing half hour service during peak morning and afternoon travel periods would appear to constitute the most viable operational arrangement.

A prime location for a ferry terminal in Woodside would be IEL owned property in the vicinity of the junction of Pleasant Street and the Circumferential Highway and just south of the Nova Scotia Hospital (see Figure 4.1). A conceptual plan for a ferry terminal at this location is shown in Figure 4.2

Initial capital costs associated with the implementation of a new ferry service between Woodside and Halifax, as shown in Table 4.1, would amount to approximately 7 million dollars. A two year lead time would be required for construction purposes.



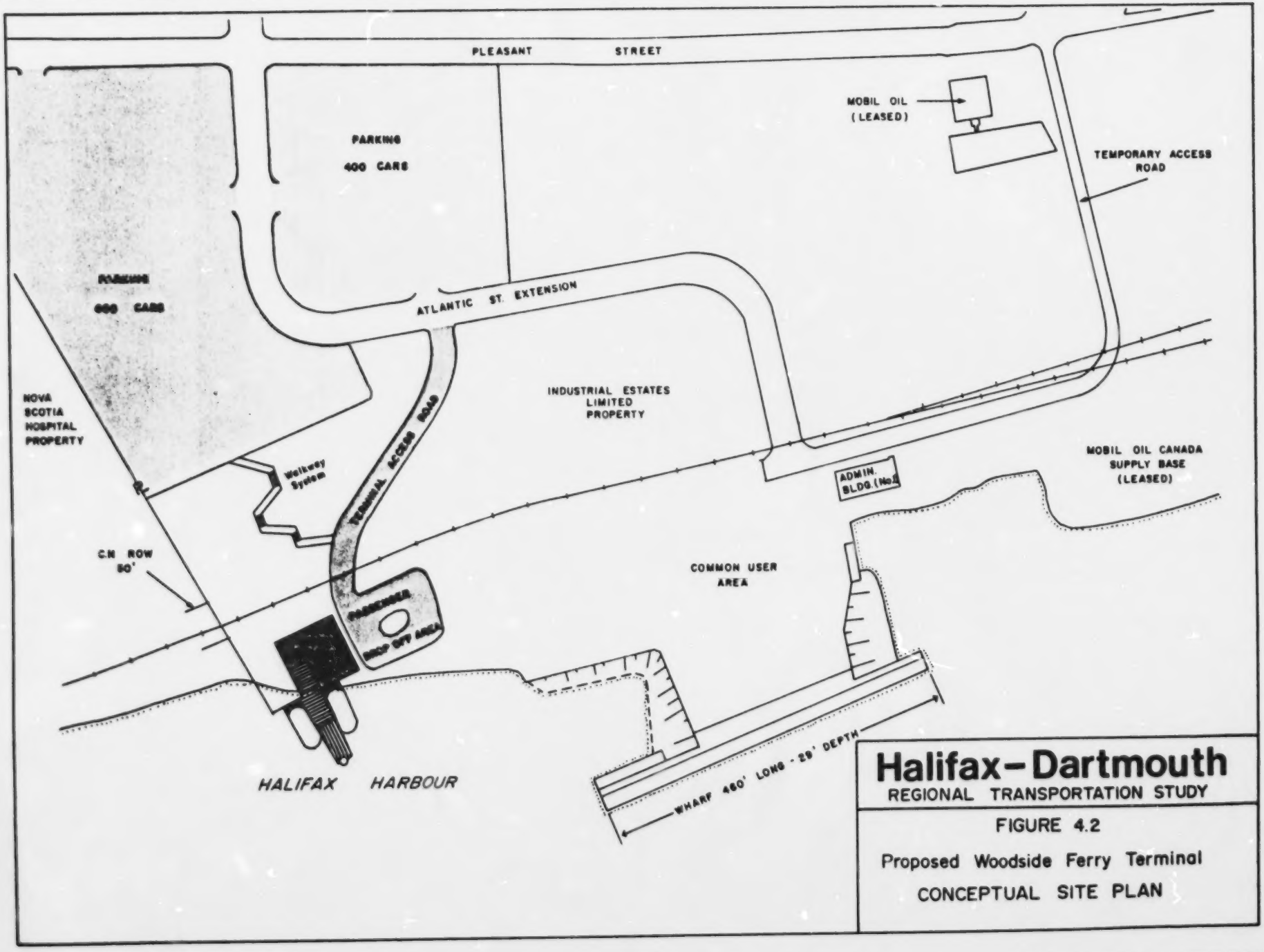
Halifax – Dartmouth

REGIONAL TRANSPORTATION STUDY

FIGURE 4.1

Proposed Woodside Ferry Terminal

LOCATION PLAN



Halifax–Dartmouth
REGIONAL TRANSPORTATION STUDY

FIGURE 4.2

Proposed Woodside Ferry Terminal

CONCEPTUAL SITE PLAN

Table 4.1

WOODSIDE-HALIFAX FERRY SERVICE

- Estimated Capital Costs -

(1984 Dollars)

	Cost Item	Approximate Size	Estimated 1984 Cost
1.	Ferry	400 passenger	$2,500,000
2.	Terminal	7,500 sq. ft.	800,000
3.	Dock	length = 80 ft.	1,900,000
4.	Parking Lot	500 spaces[1]	1,000,000
5.	Access Roadway & Landscaping		200,000
	Total Construction		$6,400,000
	Engineering (Design, Supervision, etc.)		600,000
	Total Initial Costs[2]		$7,000,000

[1] Additional parking space (up to 1,000 in total) will be required as ridership increases.

[2] Cost of land not included.

Operating costs for a one vessel Woodside-Halifax peak hour ferry service would be in the order of $250,000 per year. The annual operating deficit for this service would amount to roughly $100,000. Should a Woodside-Halifax ferry service be implemented, there would be an immediate reduction in ridership on the existing Halifax-Dartmouth ferry service. This ridership reduction would be accompanied by an increase in the deficit for existing ferry operations. It is estimated that the total

annual deficit for cross harbour ferry operations will increase from its present level of $530,000 per year to $710,000 per year, with the implementation of a peak hour weekday ferry service between Woodside and downtown Halifax.

The short-term impact of a new Woodside-Halifax ferry service, as far as metro area congestion problems and cross harbour commuters are concerned, can be summarized as follows:

- Portland Street would experience an immediate traffic reduction of approximately 25 percent.
- A new Woodside-Halifax ferry service would offer home-to-work travel times and costs very competitive with existing highway travel modes.
- Demand for parking space in downtown Halifax and Dartmouth would be reduced.

In the longer term, depending on the rate and distribution of population growth on the eastern side of Halifax Harbour, additional cross harbour transportation capacity provided by a Woodside-Halifax ferry service could delay the need for a new Harbour bridge crossing for 5 - 10 years beyond the point in time that existing bridge capacity is reached. In order to achieve this impact, two ferry vessels would ultimately be required.

4.2.3 Bedford-Halifax Hovercraft Service

A hovercraft service between Bedford and downtown Halifax would be of primary interest to the 2,400 or so people commuting on a daily basis between these two areas. It is estimated that 18 percent, or 440 of these commuters would be attracted to a new Bedford-Halifax hovercraft service.

Two vessels would be required in order to provide one half hour service during the peak travel periods. Estimated capital costs for a Bedford-Halifax commuter service, shown in Table 4.2, would amount to approximately 7.2 million dollars.

Table 4.2

BEDFORD-HALIFAX HOVERCRAFT SERVICE

- Estimated Capital Costs -

(1984 Dollars)

Capital Cost Item	Approximate Size	Estimated 1984 Cost
Hovercraft Vessels	2 @ 100 passengers each	$4,400,000
Terminal		
- Bedford	2,500 sq. ft.	270,000[1]
- Halifax	3,000 sq. ft.	320,000[1]
Dock Facilities		
- Bedford	-	500,000
- Halifax	-	400,000
Access Roads, Landscaping, etc.	-	250,000
Total Construction		$6,640,000
Engineering Costs		600,000
Total Initial Costs		$7,240,000

[1]Cost of land not included.

Operating costs associated with a weekday, peak-hour hovercraft service would amount to approximately $500,000 per year. In order to achieve a 50 percent operating cost recovery on this service, it would be necessary to charge passengers $2.50 for a one-way trip. With such an exorbitant fare (compared to 65¢ for regular bus service and 95¢ for express bus service) it is unlikely that the previously mentioned ridership level would be attained. The Metropolitan Transit Commission achieves a cost recovery of approximately 65 percent.

The removal of fewer than 200 passenger automobiles from the region's roadway system during the peak period would not have any noticeable impact on metro area congestion problems. Furthermore, home-to-work travel times via hovercraft would not be significantly different from those offered by express buses and would be 35 to 45 percent higher than those achieved by the private automobile.

A two year lead time would be required in order to put a Bedford to Halifax hovercraft service into operation.

4.2.4 Commuter Rail

On the basis of existing travel patterns, it is evident that the only corridor with any potential commuter rail ridership at all is between Bedford-Sackville and downtown Halifax. It is estimated that, of the 2,400 commuters traveling between these areas, not more than 440 would make use of a commuter rail service on a daily basis (i.e., 220 per direction).

Capital requirements for a commuter rail service between the Bedford-Sackville area and downtown Halifax include rolling stock and infrastructure. Total capital costs, as itemized in Table 4.3, would amount to just over 5 million dollars.

Table 4.3

HALIFAX COMMUTER RAIL

- Estimated Capital Costs -

(1984 $)

Item	Costs[1]
Rolling Stock	
2 Self-propelled diesel railcars	$ 700,000
Infrastructure	
2 stations with parking	1,000,000
Track upgrading (30 year life)	2,000,000
Signalization & communications	1,000,000
Net Estimated[2]	$4,700,000
Engineering Design & Supervision	400,000
Total Estimated[2]	$5,100,000

[1]Costs are mid-range estimates based on average conditions.

[2]Cost of land not included.

In order to estimate operating costs, it is assumed that a service frequency of nine round trips per day (including deadhead runs) would be required in order to provide an attractive level of service to potential riders. On the basis of this assumption, annual operating costs would amount to roughly $640,000. A one-way fare of $1.25

(express bus from Bedford is presently 95¢) would result in an annual revenue of approximately $140,000. On the basis of operating costs alone, cost recovery for this commuter rail service would be in the order of 22%. On the basis of operations plus debt retirement, user revenue would amount to approximately 10 percent of costs.

Unit costs would range from $15.75 per mile on the basis of operations alone, to $34.70 per mile when debt retirement is included as well. Table 4.4 provides a summary of annual costs and revenues.

Table 4.4

HALIFAX COMMUTER RAIL

- Estimated Annual Operating Deficit -
(1984 $)

1.	Annual Basic Operating Costs	$ 640,000
2.	Debt Charges, Administration	770,000
3.	Estimated Revenue	140,000
4.	Net Debt (basic ops. only)	500,000
5.	Revenue Cost Ratio - based on (1) only	22%
6.	Net Debt - (basic ops. plus debt)	1,270,000
7.	Revenue Cost Ratio - (including debt retirement)	10%
8.	Operating Cost per km - (basic only) (Cost per mile = $15.75)	9.85
9.	Operating Cost per km - (basic plus debt) (Cost per mile = $34.70)	21.70
10.	Net Cost Per Person Trip	$ 5.80 - $ 11.55

The time required to implement the service depends on CTC approvals, negotiations with CN and/or VIA and construction time. It is unlikely a start could be made in less than three years.

The staggering operating cost per mile ranging from $15.75 (basic) to $34.70 (incl. debt) does not compare favourably with the cost of public transit at $3.40 per mile (incl. debt). In order for the service to reach an acceptable public transit revenue cost ratio of 50%, and with fares comparable to public transit, the ridership would have to approach 2,200 per day, which is five times that forecast for the foreseeable future. (Even without the capital debt burden the ridership would have to be around 1,000 per day.) A ridership of 2,200 per day would still require a subsidy of around $700,000 per year. Based on the forecast ridership of 440 per day, the annual operating deficit would amount to approximately $1,270,000.

The economics of operating a commuter rail service from the Bedford-Sackville area to the centre of Halifax mitigate against any such service being a practical method of serving the commuter needs of the community within the foreseeable future.

4.3 Measures Designed to Improve Automobile Flow

There are basically two types of measures that have potential for improving the flow of passenger automobiles throughout the metropolitan area:

- traffic control related measures
- roadway construction/reconstruction measures

4.3.1 Traffic Control Improvement Measures

Measures considered in this category are designed to increase the efficiency and vehicle carrying capacity of existing roadway facilities. Three specific projects are considered:

- Fixed Time Traffic Signal Syncronization
- Computerized Demand Responsive Traffic Control
- One-Way Peak Period Traffic Flow - Macdonald Bridge

Fixed Time Traffic Signal Coordination

Operational efficiency can be achieved through coordination or syncronization of traffic signals along major routes throughout the metropolitan area. The age and quality of existing traffic signal equipment in use throughout metro is such that prolonged signal coordination is not possible. It is estimated that an expenditure of approximately $500,000 would be required in order to upgrade traffic signal equipment to permit reliable traffic signal syncronization on a region-wide basis.

Computerized Demand Responsive Traffic Control

On an area or region-wide basis, greatest efficiency in traffic signalization can be achieved through installation of a computer based traffic responsive control system. In such a system, traffic actuated sensors at intersection approaches throughout the metropolitan area are utilized to collect traffic flow information on a continuous basis. This information is fed into a central computer facility which determines optimum signal timing strategies for each intersection in the network and adjusts

cycle times on a relatively frequent basis in order to accommodate constantly changing travel patterns. Signal timing strategies selected, ensure that total delay (due to intersection related congestion) throughout the network will be minimized. Experience in other cities, where this concept has been applied, would indicate that the following results can be expected:

- a 20 to 30 percent reduction in vehicle delay
- a 25 percent reduction in stops
- a 20 to 25 percent reduction in total travel time
- a 10 to 15 percent reduction in accidents
- a fuel savings of up to 35 percent

To install a computerized traffic control system in the urbanized areas of Halifax-Dartmouth would require an initial capital outlay of approximately 2 million dollars. Operating costs would be in the order of $300,000 per year. Travel cost savings for auto users will likely exceed the above capital cost within two years of installation.

One-Way Peak Period Traffic Flow - Macdonald Bridge

It has been suggested, on a number of occasions, that the movement of vehicular traffic between Halifax and Dartmouth could be enhanced by converting the Angus L. Macdonald Bridge to a one-way facility during peak travel periods. It is alleged that peak travel times between Halifax and Dartmouth could be reduced significantly by such action.

Any improvement in traffic flow across the Macdonald Bridge by the institution of one-way traffic control during peak travel periods must be balanced against the following negative aspects:

- Vehicles traveling in the non-peak direction will incur increased travel times (via the MacKay Bridge) in order to reach their destination. The directional split of traffic on the Macdonald Bridge is such that during the morning peak (7:00 a.m. to 9:00 a.m.), 35 percent of bridge users would be inconvenienced by a one-way traffic flow strategy. During the afternoon peak (3:30 p.m. to 5:30 p.m.), 45 percent of bridge users would experience an increase in travel time.

- Transit operations would be adversely affected. The round trip travel distance of buses operating between Halifax and Dartmouth would be increased by approximately 5 miles with the implementation of a one-way traffic control strategy on the Macdonald Bridge. In addition to inconveniencing non-peak directional bus travelers, such action would increase transit operating costs by roughly $200,000 per year.

- The conversion to one-way flow during peak travel periods would place additional pressure on intersections at either end of the Macdonald Bridge. The extent to which these intersections could handle this increased pressure is not known at the present time.

- Emergency vehicles, such as ambulances and police vehicles would be required to take a more circuitous route to their destination.

- A one-way flow strategy would be confusing to visitors to the metro area.

More study is required before a final decision can be made regarding this potential traffic flow improvement strategy. However, this initial review would suggest that any benefits gained would likely be more than offset by the inconvenience caused.

4.3.2 Roadway Construction/Reconstruction Measures

In instances where improvements in the efficiency of existing transportation facilities and services are not adequate to accommodate travel demand, new or expanded roadway facilities may be the only answer to congestion problems. The following roadway construction/reconstruction projects have been considered in the course of this study:

Location of Improvement		Nature of Improvement(s)
1.	Barrington Street	Widening between Cogswell and Artz Streets Widening between Devonshire Avenue and MacKay Bridge ramps
2.	MacKay Bridge	Ramp reconstruction
3.	Bedford Highway	Widening between Kearney Lake Road and Bayview Road
4.	Bayers Road	Widening between Highway 102 and Connaught Avenue
5.	Herring Cove Road	Widening between Armdale Rotary and City Limits
6.	Main Street	Widening between Micmac Rotary and Caledonia Road

Location of Improvement		Nature of Improvement(s)
7.	Micmac Rotary	Interchange construction
8.	Portland Street	Widening between Pleasant Street and Gaston Road
9.	Northwest Arm	New bridge crossing
10.	Halifax Harbour South	New bridge crossing

These improvements are described further in the following paragraphs.

Barrington Street Improvements

It was noted previously that congestion occurs on Barrington Street during the peak travel periods at two locations:

- between Cornwallis Street and Artz Street
- between Devonshire Avenue and the MacKay Bridge

For a number of years, City of Halifax officials have expressed an interest in the construction of a new four lane controlled access expressway from Cogswell Street to the MacKay Bridge. Such a facility would effectively eliminate all congestion problems on Barrington Street as well as other related problems (i.e., through traffic on local streets). The Committee has concluded that this project, at an estimated total cost of over 50 million dollars, is not financially feasible at the present time, and proposes the following scaled down improvements to Barrington Street:

- Widening of Barrington Street between Cogswell Street and Artz Street to provide four through traffic lanes as well as left turn lanes for southbound

traffic at Cornwallis and northbound traffic at Artz. This improvement will cost approximately $500,000 to complete.

- Widening of Barrington Street to four lanes between Devonshire Avenue and the MacKay Bridge ramps at a total estimated cost of 4 million dollars.

On the basis of time savings alone, at $4 per vehicle hour, these improvements could generate $500,000 per year in user benefits.

To the extent that the widening of Barrington Street between Cogswell and Artz Streets can generate considerable user savings at a relatively low cost ($500,000), it is recommended that action be taken to implement this improvement in the immediate future. The widening of Barrington Street, between Devonshire Avenue and the MacKay Bridge ramps should be undertaken within the next 5 years.

MacKay Bridge Ramp Reconstruction

Traffic tie-ups on and approaching the MacKay Bridge (Halifax end) result from capacity deficiencies on the access and egress ramps as opposed to the bridge structure itself. In order to rectify this situation, the following improvements are required:

- widening of the Robie Street approach ramp to two lanes along with the addition of a third east bound lane between the Robie Street ramp and the bridge structure itself;

- addition of a third west bound lane between the west end of the bridge structure and the Robie Street exit in combination with the construction of a new ramp to provide a direct connection to Robie Street.

Congestion problems experienced on the Barrington Street off-ramp are related to a capacity deficiency in the vicinity of the Barrington Street ramp/Kempt Road ramp merge. This problem will be resolved with the widening of Barrington Street north to four lanes as described previously.

The total cost of these modifications will amount to approximately 4.5 million dollars. While it is essential that these improvements be completed within the next 5 years, the Robie Street approach ramp widening should proceed immediately, by virtue of the fact that substantial user benefits can be attained with a relatively low capital outlay of $500,000.

Bedford Highway Improvements

It is proposed that the Bedford Highway be widened to four lanes between Kearney Lake Road and Bayview Road, a distance of 2.8 kilometers. It is estimated that this improvement would cost approximately 4 million dollars and would generate $500,000 per year in user time savings alone. Fuel savings resulting from decreased congestion would amount to roughly 340,000 litres (about $170,000) per year.

This improvement should be completed within the next 5 years.

Bayers Road Improvements

A joint provincial-municipal transportation committee established in 1975 is presently investigating potential solutions to the Bayers Road congestion problem. It is anticipated that this committee's recommendations will include the following:

- widening of Bayers Road to six lanes between Desmond Avenue and Connaught Avenue;
- construction of slip-on/slip-off lanes at Romans Avenue to eliminate cross traffic; and
- construction of 2 pedestrian overpasses over Bayers Road.

It is estimated that this project will cost approximately 5 million dollars and will generate $200,000 per year in user time savings.

The Inter-Departmental Committee on Transportation endorses this improvement strategy for Bayers Road, subject to the following qualification. Improvements to the MacKay Bridge ramps will improve the attractiveness of the Magazine Hill/MacKay Bridge route for Bedford and Sackville commuters (relative to Bicentennial Highway/Bayers Road) thus reducing pressure on Bayers Road. It is therefore concluded that the above proposed improvements to Bayers Road will not be required within the next 5 years.

Herring Cove Road Improvements

The City of Halifax, with provincial financial assistance, has undertaken a long-term program of widening the Herring Cove Road between the Armdale Rotary and Halifax City Limits to provide four through travel lanes and a continuous left turn lane. Widening the portion of Herring Cove Road between the Armdale Rotary and the Williams Lake Road at an estimated cost of 10 million dollars will be required within the next 5 years. Improvements to the remainder of Herring Cove Road within the City of Halifax, at a cost of approximately 13 million dollars, will not be required before 1990.

Micmac Rotary Improvements

At present, over 65,000 vehicles travel through the Micmac Rotary on an average weekday. It is estimated that, on a daily basis, more than 6,000 "would-be" Micmac Rotary travelers divert to other Dartmouth streets in order to "short cut" rotary congestion.

The Highway 107 ByPass via Porto Bello (currently under construction) is expected to attract 5,000 to 8,000 vehicles per day. In the next few years, it is expected that continued high residential growth in some areas of east Dartmouth (and immediately adjacent areas of Halifax County) will be accompanied by a substantial increase in east-west vehicular traffic through the City of Dartmouth. As a result of this growth, within the next five years the congestion problem at the Micmac Rotary will once again reach extreme proportions.

A major interchange facility, in place of the Micmac Rotary, is considered to be the most appropriate means of providing long-term relief of traffic congestion at this location and relieving other city streets of unwanted through traffic.

Such a facility, providing for free flow movement of traffic along the Circumferential Highway and between the Circumferential Highway and Main Street would vastly improve travel times of motorists in the area. It is estimated that 500,000 vehicle-hours and 1.4 million litres of fuel would be saved annually.

At an estimated cost of 16 million dollars, construction of this interchange will likely take three years. In recognition of the expected need for this facility (within five years) and the need for an alternative route for traffic during construction, it will be necessary to commence improvements at the Micmac Rotary immediately upon completion of the Highway 107 ByPass (expected fall of 1985).

Main Street Improvements

Arguments supporting the need for improvements at the Micmac Rotary can likewise be made for the widening of Main Street within the next five years. Benefits to motorists, of a widened Main Street (to four lanes between Caledonia Road and the Micmac Rotary with separate left turn lanes at signalized intersections), could easily amount to a savings of 200,000 vehicle-hours and 500,000 litres of fuel per year. Total cost of this improvement will be in the order of 3 million dollars. As in the case of the proposed Micmac Rotary improvements, this improvement cannot proceed prior to completion of the Highway 107 ByPass.

It should be noted that disruption of traffic on Main Street during construction will likely have a short-term negative impact on businesses in the area. However, the requirement for additional right-of-way (2 to 8 feet in places) should not be significant enough to cause any long-term hardship.

Portland Street Improvements

Improvements in the Micmac Rotary/Main Street area and/or the implementation of a Woodside Halifax ferry service could have a significant impact in terms of diverting traffic away from Portland Street. It is estimated that if these improvements are carried out, the need for upgrading of Portland Street will be delayed for at least 10 years.

Without these improvements, it will be necessary to immediately widen Portland Street to three lanes (centre lane reversible) between Gaston Road and Pleasant Street, at an estimated cost of 1 million dollars. It is estimated that this improvement could generate user time cost savings of approximately $240,000 per year.

Third Harbour Bridge Crossing

A third harbour bridge crossing between Woodside (Circumferential Highway) and south end Halifax by way of George's Island would have the following positive impacts:

- traffic throughout the Halifax and Dartmouth street network would be more evenly distributed; and,

- traffic congestion would be reduced in the north end of Halifax, on the approaches to the Macdonald Bridge, in downtown Dartmouth and on Portland Street.

The requirement for a third harbour bridge crossing at some future point in time is very much dependent on a number of factors, including:

- the extent to which non-roadway construction/reconstruction congestion reducing measures are implemented (i.e., increased transit service, Woodside-Halifax ferry service);

- the response of the traveling public to non-roadway construction/ reconstruction congestion reducing measures;

- the rate of future population and employment growth in the region; and

- the distribution of future population and employment growth.

In any event, provided improvements are made to the Halifax ramps of the MacKay Bridge, it is not expected that a third harbour bridge crossing will be required within the next 10 years. The implementation of a ferry service between Woodside and Halifax would further delay the need for such a facility. The cost of a third harbour bridge crossing, if and when required, will be approximately 200 million 1984 dollars.

A Transportation Task Force established as a part of the Halifax-Dartmouth Regional Development Plan review is continuing its investigation of long-term transportation requirements, of which, a third harbour bridge crossing is a component.

Northwest Arm Bridge

A bridge across the Northwest Arm would be beneficial to persons traveling from mainland south to Halifax Peninsula. Traffic volumes and resultant congestion would be reduced on Herring Cove Road, Quinpool Road, and Chebucto Road. This beneficial impact of a Northwest Arm Bridge would be offset somewhat by the detrimental impact that such a facility would have on residential areas within and adjacent to bridge approach right-of-ways (particularly in the south end of Halifax).

In any event, the recent construction of Northwest Arm Drive (connecting the Old Sambro Road and Bicentennial Drive), combined with past and proposed improvements to Herring Cove Road ensure that a bridge crossing of the Northwest Arm will not be required within the next 10 years. The need for a Northwest Arm Bridge beyond that point will be a function of the rate of residential development in the Halifax Mainland South area, as well as other factors identified in the preceding section. It is estimated that this bridge would cost approximately 50 million 1984 dollars to construct.

This project, like the previous one, is within the purview of the Transportation Task Force of the Regional Development Plan Review. Ultimately, the Regional Development Plan could play a very significant role in determining if and when a future bridge crossing of the Northwest Arm is required.

Summary of Roadway Improvements

Table 4.5 provides a summary of the roadway improvement projects considered in the course of this study. Figure 4.3 illustrates those improvements required within the next 5 years.

4.4 Measures Designed to Reduce Peak Period Travel

As noted in Section 2.4 of this report, traffic congestion problems in the metro area are, for the most part, limited to the peak morning and afternoon travel periods. Figure 2.8 showed very pronounced peaking in travel demand at approximately 8:00 a.m. and 4:30 p.m. There are a number of measures designed to reduce the magnitude of these peaks by spreading travel demand over a longer period of time. Perhaps the most effective demand reducing measure is that of variable work hours.

The concept of variable work hours was actively promoted by the City of Halifax's Traffic Management Board in the mid-1970's, with some measure of success. In recent years, a number of major employers have terminated their flextime programs.

There is considerable merit in continuing to promote the concept of variable work hours in the metropolitan area, as it constitutes a very cost effective means of reducing peak hour congestion and consequently the need for expensive new transportation facilities and services. Major employers should be encouraged to adopt variable work hour policies.

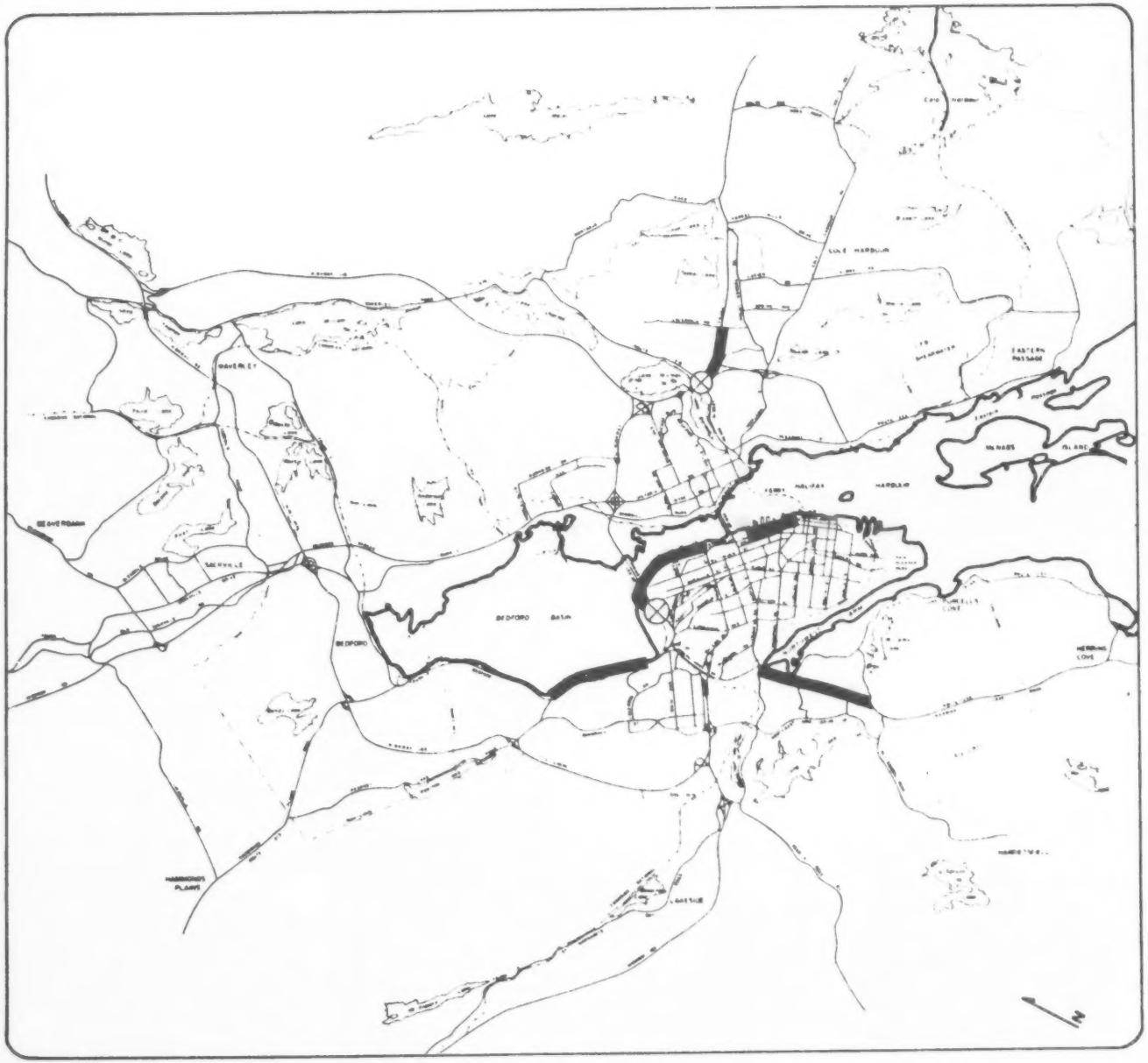
Table 4.5

ROADWAY IMPROVEMENT PROJECT SUMMARY

When Required	Improvement Project	Estimated 1984 Cost
Immediately	Barrington Street widening - Cogswell Street to Artz Street	$ 500,000
	Widening of Robie Street approach to MacKay Bridge	500,000
1 - 5 Years	Barrington St. widening - Devonshire Ave. to MacKay Bridge ramps	4,000,000
	Reconstruction of MacKay Bridge ramps	4,000,000
	Bedford Highway widening - Kearney Lake Road to Bayview Road	4,000,000
	Herring Cove Rd. widening - Williams Lake Road to Armdale Rotary	10,000,000
	Interchange construction to replace Micmac Rotary	16,000,000
	Main Street widening - Micmac Rotary to Caledonia Road	3,000,000
5 - 10 Years	Bayers Rd. widening - Highway 102 to Connaught Ave.[1]	5,000,000
	Herring Cove Rd. widening - Sussex St. to City Limits	13,000,000
Beyond 10 Years	Portland St. widening - Pleasant St. to Gaston Road[2]	1,000,000
	Northwest Arm Bridge	50,000,000
	Third Harbour Bridge Crossing	$ 200,000,000

[1]Required sooner if proposed improvements to MacKay Bridge ramps not carried out.

[2]Required immediately if improvements to Micmac Rotary/Main Street not carried out or if Woodside-Halifax ferry service not implemented.



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

TYPE OF IMPROVEMENT

WIDEN EXISTING ROADWAY

RECONSTRUCTION

Prepared for: Inter-Departmental Committee on Transportation

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

FIGURE 4.3

ROADWAY IMPROVEMENTS REQUIRED WITHIN NEXT 5 YEARS

4.5 Measures Designed to Ensure Adequate Parking

The issue of downtown parking in the metropolitan area is best viewed from the perspective of the long-term (all day, e.g., office worker) parker and the short-term (say for periods of less than three hours, e.g., shopper) parker. Furthermore, it is useful to distinguish between parking in downtown Halifax and parking in downtown Dartmouth when considering the issues relating to long and short-term parking

4.5.1 Parking in Downtown Halifax

The future relationship between long-term (all day) parking supply and demand will be very much affected by decisions relative to other potential transportation improvement measures. For example, a Woodside-Halifax ferry service and/or increased express commuter bus services could reduce the demand for long-term parking space in the downtown area.

The short-term parking issue will likely pose the most significant challenge to businessmen and governments alike in the near future. Both parties share a common concern that the availability of short-term parking not act as a deterrent to the commercial viability of the downtown area. Some steps are being taken to resolve short-term parking space distribution problems in the downtown area.

The rate of commercial development in downtown Halifax is such that continued study and monitoring of the parking situation is required.

4.5.2 Parking in Downtown Dartmouth

As noted previously, the only parking problem of significance in downtown Dartmouth is that associated with ferry commuters. A recently opened long-term parking lot on the site of the Canada Liquid Air building (just north of the ferry terminal parking lot) will provide some measure of relief for this problem in the short term. In the longer term, the commuter parking issue, like the downtown Halifax long-term parking issue, will be very much affected by decisions relative to other potential transportation improvement measures in the region. In particular, the implementation of a ferry service between Woodside and Halifax and the consequent diversion of existing ferry users to the new service would significantly reduce the demand for commuter parking space in downtown Dartmouth.

5. URBAN DEVELOPMENT PATTERN AND TRANSPORTATION

Future transportation facility requirements in the metropolitan area will be very much influenced by the pattern of development in the region. Excess capacity in the existing transportation system is such that major residential development can be accommodated in some parts of the region at a much lower transportation infrastructure cost than others. For example, one need only compare the transportation facility costs associated with major new residential development in Halifax mainland south versus similar development in Halifax mainland north. Major development in Halifax mainland south could not proceed to any great extent without the construction of a 50 million dollar Northwest Arm Bridge. Traffic generated by major new residential development in Halifax mainland north could, on the other hand, be accommodated at a much lower cost by expanding the capacity of existing roadway facilities. Given the need to economize on all public expenditures, it is clearly in the best interests of both the City of Halifax and the provincial government to encourage residential development in the mainland north area of the City.

In the long-term, the overall level of expenditure on transportation infrastructure and services in the region will be very much determined by the provincial government's ability to influence the pattern of development in the region in such a way as to:

- maximize the utilization of existing excess transportation capacity;
- take advantage of relatively low cost alternatives for increasing transportation system capacity; and,

- promote a planned approach to major capital expenditures on transportation faciities such that they are provided when the service is needed and the financial resources are available.

In the past, the provincial government has been able to optimize transportation expenditures in the region by means of urban form and other policies contained in the Halifax-Dartmouth Regional Development Plan. These policies have had a definite influence on the pattern of development within the metropolitan area. For example, land development activities of the Nova Scotia Department of Housing (formerly Nova Scotia Housing Commission) have reflected Regional Plan urban form policies, thus affording the provincial government a very effective means of influencing the pattern of development in the region.

Long-range transportation planning for the metropolitan area must proceed in close consultation and coordination with all land use planning activities of provincial and municipal governments, in order to ensure optimization of future transportation investment.

6. FURTHER STUDY REQUIRED

The transportation problems addressed by this Committee dealt with both the short and long-term needs of the region.

While the total implementation costs over the long term could exceed $340,000,000, the cost of implementing those projects required in the next five years is around $55,000,000. These include some twelve projects which range in costs from $25,000 for an exclusive lane for buses at the Macdonald Bridge toll plaza to a $16,000,000 interchange at the Micmac Rotary. Also included for short-term (0 - 5 years) implementation are: Woodside-Halifax Ferry ($7.0 m); 24 additional transit vehicles ($4.0 m); Barrington Street widening ($4.5 m); MacKay Bridge ramps ($4.5 m); Herring Cove Road ($10.0 m); computerized traffic control ($2.0 m); Main Street widening ($3.0 m); and Bedford Highway widening ($4.0 m).

All of the projects require detailed engineering study and the financial impact on provincial and municipal governments, as well as other agencies involved, must be given further consideration. Furthermore, there is need for input from the public and for information from those boards and commissions having an ongoing interest in the various projects.

Two questions must be answered. First, what projects have the greatest initial benefit to the region; and second, how should the projects be coordinated, having regard to the best overall interests of the region. The matter of priority will result from further study as recommended.

The matter of how best to coordinate the implementation of the projects is not so easily answered. There is a need for a new mechanism to act as a central coordination agency within an existing level of government. This could be achieved by introducing a regional urban transportation planning and management centre in a provincial government department.

It is recommended that such a centre be established within the Department of Transportation. Expertise already exists in a number of departments which could be consolidated into the centre, without adding significantly to the provincial government's total transportation budget. Given that the activities of this centre would be of interest to and impact upon several provincial departments, municipal units, boards and commissions, it is further recommended that an advisory group representing those interests be formed.

APPENDIX

1. BACKGROUND

Recognizing the present and project growth potential of the Halifax/Dartmouth metropolitan area, the Government of Nova Scotia has established an Inter-Departmental Committee charged with the responsibility of identifying problems of transportation and recommending viable solutions. With the recognition of the importance of the Metropolitan Transportation System to the economic and industrial development of the municipalities involved, the Province has deemed it a vital element of provincial transportation policy.

The Committee is comprised of representatives from the Departments of Development, Transportation, and Municipal Affairs and will be receiving input from the four municipal units, Metropolitan Authority, Transit Commission, Bridge Commission, related government staff and others as required.

2. METHODOLOGY

It is the aim of the Committee to follow a work program geared toward - identification of present transportation problems, a review of various potential solutions, and the development of viable recommendations which can provide a basis for action by the various levels of government.

In general, the activities include:

(1) Discussion of all Aspects of the Problem

The Committee, prior to any outside meetings, is to discuss their own interpretation of the major transportation issues, and become familiar with existing related studies.

(2) Prepare Base Mapping

Base mapping will be required to assist in discussion of the various problems and illustrating proposed solutions.

(3) Conduct Hearing with all Relevant Agencies

A series of meetings is to be held with City of Dartmouth, City of Halifax, Town of Bedford, County of Halifax, Metropolitan Authority, Transit Commission and Bridge Commission.

(4) List and Categorize all Problems Identified

Subsequent to the meeting with the various relevant agencies, a list will be prepared of the identified transportation issues and will be categorized as to their level of severity.

(5) Investigate Potential for Ferry Link to Woodside and Bedford

The Committee will review, in some depth, the benefits of providing some form of ferry link (high speed or otherwise) with the Bedford area and also south Dartmouth near the Woodside area.

(6) Outline Recommended Solutions to the Various Problems

The Committee will document one or more identified solutions to each of the transportation issues.

(7) Identify the Costs and Operation Considerations of the Various Recommended Solutions

For each of the recommended solutions which have been identified, the Committee will attempt to determine "ball-park" cost estmates and where necessary discuss operation and maintenance considerations.

(8) Outline Advantages and Disadvantages of Possible Solutions

For each of the various solutions identified, both short and long term advantages and disadvantages will be considered.

(9) Priorize Recommended Solutions

Having considered all aspects of the transportation issues and their possible solutions, a priorized list will be established which will reflect cost effectiveness considerations and the Committee's feelings as to which solutions would result in the greatest impact in improving transportation in the metropolitan region.

(10) Prepare Interim Report

Having had an opportunity to analyze all the issues and their related solutions, the Committee will prepare the first draft of their report.

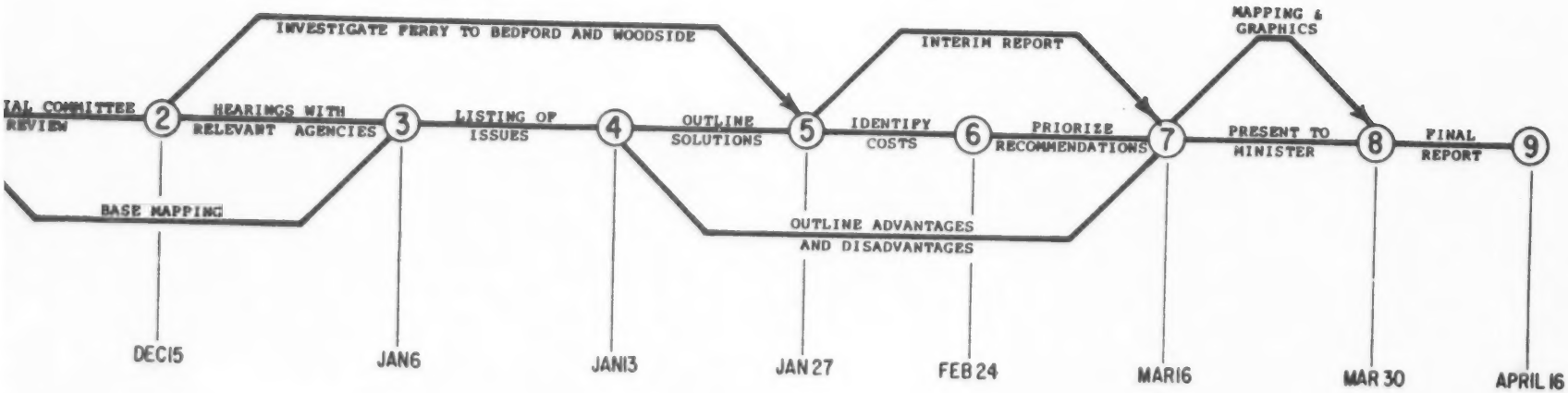
(11) Present to Ministerial Committee

With the interim report in hand, the full Committee will present their findings and recommendations to the relevant Ministers.

(12) Final Report

The final report with general recommendations will be prepared for government consideration and action.

EVENTS SCHEDULE
INTERDEPARTMENTAL TRANSPORTATION COMMITTEE



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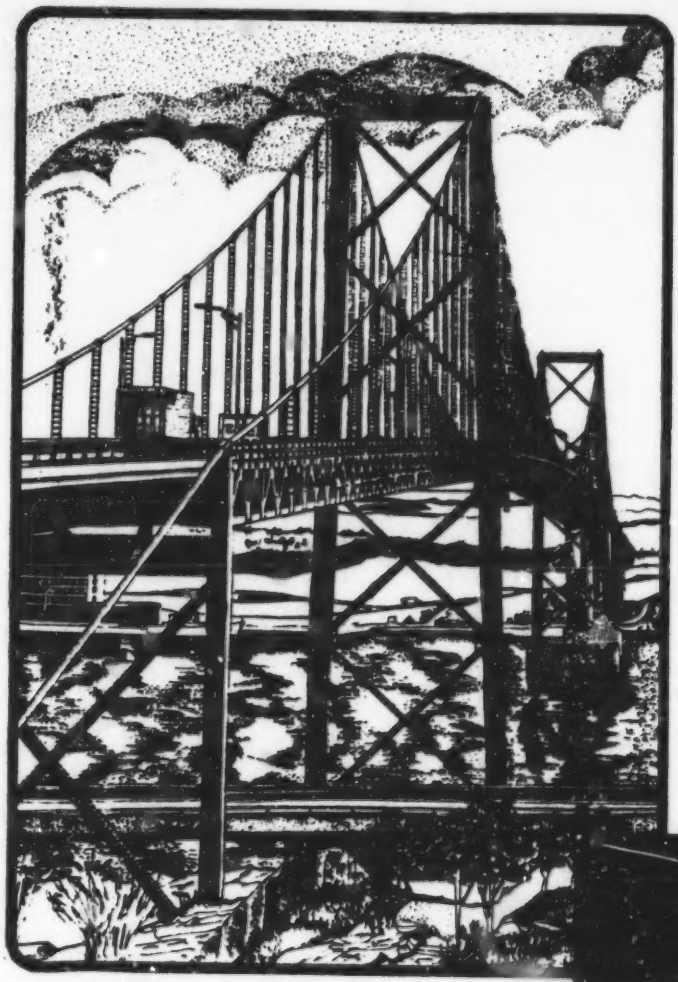
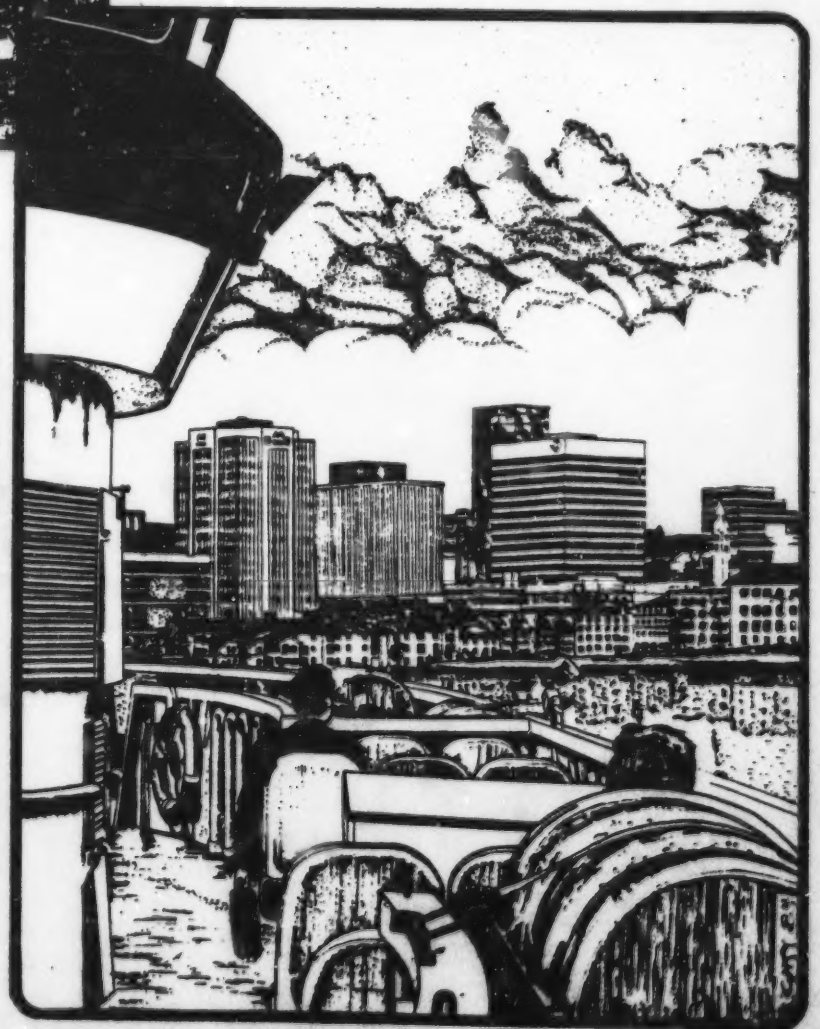


A Halifax / Dartmouth Regional Transportation Report

Executive Summary



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A Halifax / Dartmouth Regional Transportation Report

Honourable Roland J. Thornhill
Minister of Development

Honourable Thomas J. McInnis
Minister of Municipal Affairs

Honourable Jack MacIsaac
Minister of Transportation

Prepared by the Inter-Departmental Committee on Transportation

Development	Brian Gallivan (Chairman) Mildred Richardson Gary Campbell Debbie Wilson (Secretary)
Municipal Affairs	Larry Keddy David Darrow
Policy Board	Rob Smith
Transportation	Ken O'Brien Don Stonehouse

April 1984

INTRODUCTION

An efficient transportation system is vital to the economic development of the Halifax-Dartmouth metropolitan area. In recognition of this fact and in response to growing concern regarding increasing traffic congestion in various locations throughout the area, the Minister of Development, the Honourable Roland J. Thornhill, the Minister of Transportation, the Honourable Jack MacIsaac, and the Minister of Municipal Affairs, the Honourable Thomas J. McInnis, established an Interdepartmental Committee on Transportation, in November of 1983 to:

1. investigate existing transportation problems within the metropolitan area;
2. identify and evaluate potential solutions to these problems; and
3. make recommendations to the government regarding those improvements required in the immediate future.

Background research for this project was conducted largely by Committee members and associated provincial government staff in consultation with officials from the region's four municipal units, the Metropolitan Transit Commission, the Metropolitan Authority and the Halifax-Dartmouth Bridge Commission.

This report represents an overview of the Committee's findings, conclusions and recommendations.

METROPOLITAN AREA TRANSPORTATION PROBLEMS

Transportation problems in the Halifax-Dartmouth area can be classified broadly as automobile related or transit related. Vehicular congestion on several metropolitan area roadways during peak morning and afternoon travel periods is seen, by many, as the most serious of the region's transportation problems.

Areas of extreme vehicular congestion include:

- the Micmac Rotary
- the Macdonald Bridge and approaches

Areas of high vehicular congestion include:

- the MacKay Bridge - ramps on Halifax side
- Barrington Street - Duffus to Seaview Park
- Barrington Street - Cornwallis Street to Artz Street
- Barrington Street - Duke Street to Spring Garden Road
- Bayers Road - Dutch Village Road to Connaught Avenue
- North Street - Gottingen Street to Chebucto Road
- Robie Street - Young Street to Quinpool Road
- Willow Tree Intersection (intersection of Robie, Quinpool, Cogswell and Bell)
- Water Street - Salter Street to Cogswell Street
- Jubilee Road - Preston Street to Connaught Avenue
- Bedford Highway - Bayview Road to Kearney Lake Road
- Herring Cove Road - Old Sambro Road to Armdale Rotary

- the MacKay Bridge - vicinity of Toll Plaza
- Main Street - Caledonia Road to Micmac Rotary
- Portland Street - Victoria Road to Gaston Road
- Cole Harbour Road - Circumferential to Portland Estates

These and other areas of less severe congestion are shown in Figure 51.

Other automobile related issues investigated by the Committee include parking in downtown areas and traffic intrusion into residential areas.

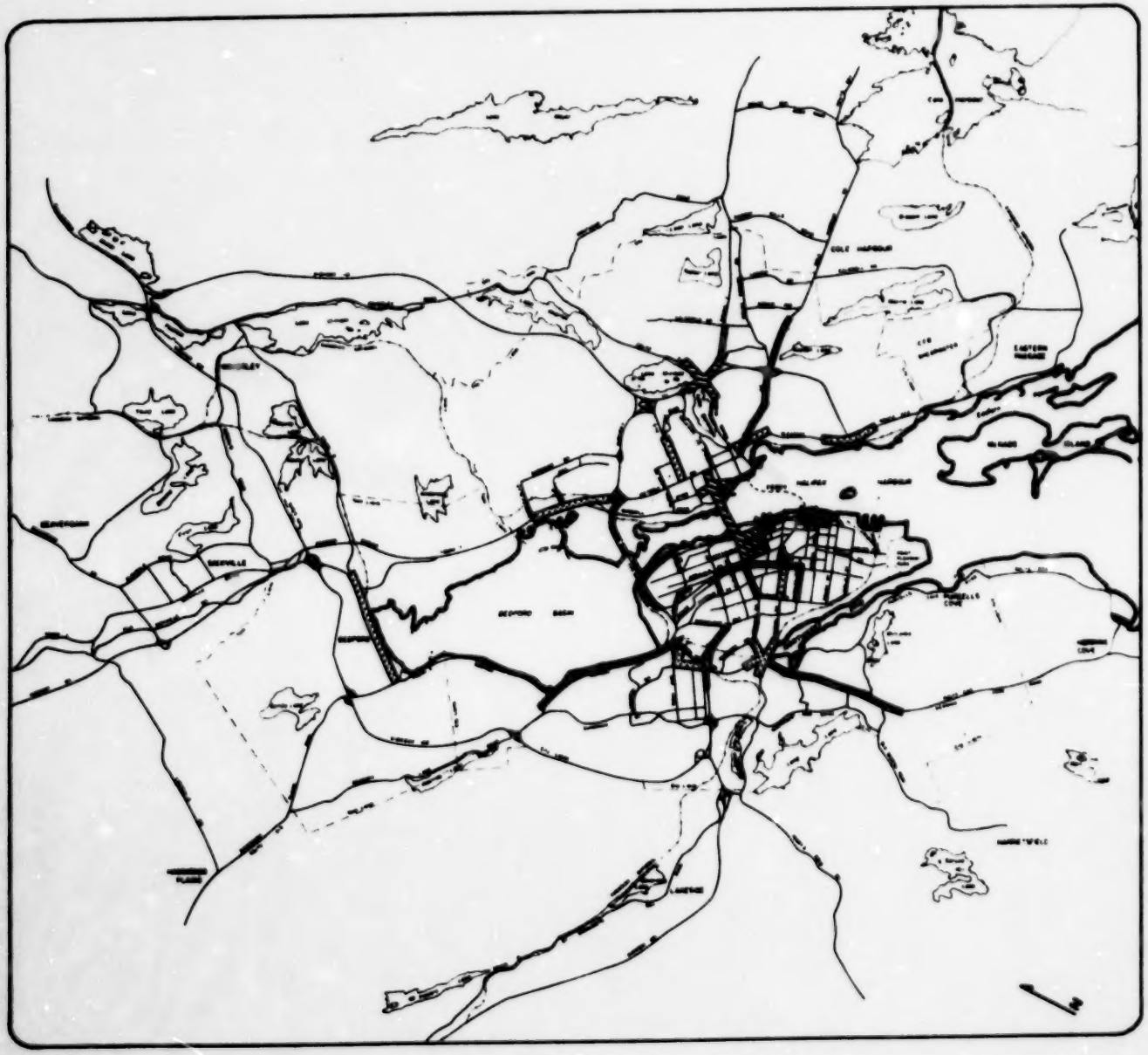
The following transit related concerns have been investigated by the Committee:

- excessive travel times (as compared to the automobile)
- bus overcrowding during peak travel periods
- low service frequencies

POTENTIAL IMPROVEMENT MEASURES

A wide variety of potential improvement measures have been identified and evaluated throughout the course of this study. An evaluation was made of the potential for the following measures to relieve metro area transportation problems by enabling and encouraging the use of travel modes other than the private automobile:

- implementation of additional express commuter bus services
- exclusive bus lanes



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

LEGEND

- EXTREME LEVEL OF CONGESTION
- HIGH LEVEL OF CONGESTION
- MODERATE LEVELS OF CONGESTION

Prepared for: Inter-Departmental Committee on Transportation

Province of Nova Scotia Department of Development

Province of Nova Scotia Department of Transportation

Province of Nova Scotia Department of Municipal Affairs

FIGURE 51
AREAS OF VEHICULAR CONGESTION

- park-and-ride
- Woodside-Halifax ferry service
- Bedford-Halifax hovercraft service
- commuter rail service

Measures considered for their potential to enhance the movement of passenger vehicles throughout the metropolitan area included:

- computerized traffic control
- one-way peak period traffic flow on the Macdonald Bridge
- various roadway construction/reconstruction projects

The concept of variable work hours was investigated as a means of alleviating peak period congestion by reducing the number of persons traveling during extreme peak periods.

The potential for minimizing future transportation facility costs through long-range regional land use planning has been considered as well.

CONCLUSIONS

General

1. An efficient transportation system is vital to the region's economy.

2. For the most part, the region's transportation system has provided relatively high levels of mobility to residents of and visitors to the region.

3. There are, however, a number of mobility problems being experienced at the present time, many of which are associated with roadway congestion during the peak morning and afternoon travel periods.

4. There are a variety of measures that can be utilized to relieve congestion problems throughout the metropolitan area:

   - measures designed to reduce dependence on the private automobile
   - measures designed to improve automobile flow
   - measures designed to reduce peak period travel

Reduced Automobile Dependence

5. Of the measures designed to reduce private automobile use in the region, the following are considered to have the greatest potential:

   - increased express commuter bus services
   - exclusive bus lanes
   - Woodside-Halifax ferry service

6. In some of the more densely developed parts of the region (i.e., much of Halifax peninsula), roadway construction/reconstruction is and will be a prohibitively expensive and disruptive means of dealing with present and future congestion problems. The most cost effective long-term means of dealing with this situation is to achieve greater efficiency from the existing roadway system. Increased commuter transit ridership is one way of achieving this goal. The most effective way of increasing commuter transit ridership is through implementation of new express bus services during peak travel periods.

7. Inter-municipal cost sharing of transit services has been a very contentious issue over the past three years. This situation is having a negative impact on the overall level of transit service in the region.

8. Increased transit ridership will contribute to the relief of parking problems in both downtown Halifax and Dartmouth.

9. An exclusive bus lane at the Macdonald Bridge toll plaza is considered a cost effective means of reducing travel times for the 2,000 or so persons commuting by transit between Dartmouth and Halifax on a daily basis.

10. A Woodside-Halifax ferry service would have the following immediate benefits:

- improved commuting travel times for persons living in the Woodside, Cole Harbour, Forest Hills, Colby Village, Eastern Passage, and Eastern Shore areas and working in downtown Halifax

- reduced traffic congestion on Portland Street

- reduced parking demand in downtown areas of Dartmouth and Halifax

11. The major long-term benefit of increased ferry service between Halifax and Dartmouth is the prolongation of the useful life of existing harbour bridges.

12. High speed ferry service operating between Bedford and downtown Halifax would be incapable of providing any improvement in home-to-work travel times for Bedford/Sackville residents, nor would such a service be competitive on a cost per passenger basis with existing or improved express bus services. Therefore, high speed ferry service between Bedford and Halifax is definitely not feasible at the present time.

13. Commuter rail service within the metropolitan area is not feasible at the present time, nor is it likely to become so in the foreseeable future. Express bus operations are capable of providing a higher level of service at a much lower cost per passenger.

14. On the basis of past experience in the Sackville area, it is concluded that park-and-ride services do not offer great potential for helping to resolve metro area congestion problems. However, further study of this measure is in order.

Improved Automobile Flow

15. Computerized area traffic control is considered to be the most cost effective means of improving automobile flow throughout the region. Anticipated benefits such as improved travel times (20 to 30 percent), fewer accidents and reduced fuel consumption will accrue to all segments of the traveling public.

16. Notwithstanding the preceding opportunities for relieving traffic congestion throughout the metropolitan area, it will be necessary to make a number of improvements to the region's roadway system within the next 5 years. (Refer to Figure S2.) In order to effect these and other improvements, a high level of cooperation between provincial and municipal governments will be required.

17. The following roadway improvements should be carried out immediately:

- widening of Barrington Street between the Cogswell Street Interchange and Artz Street

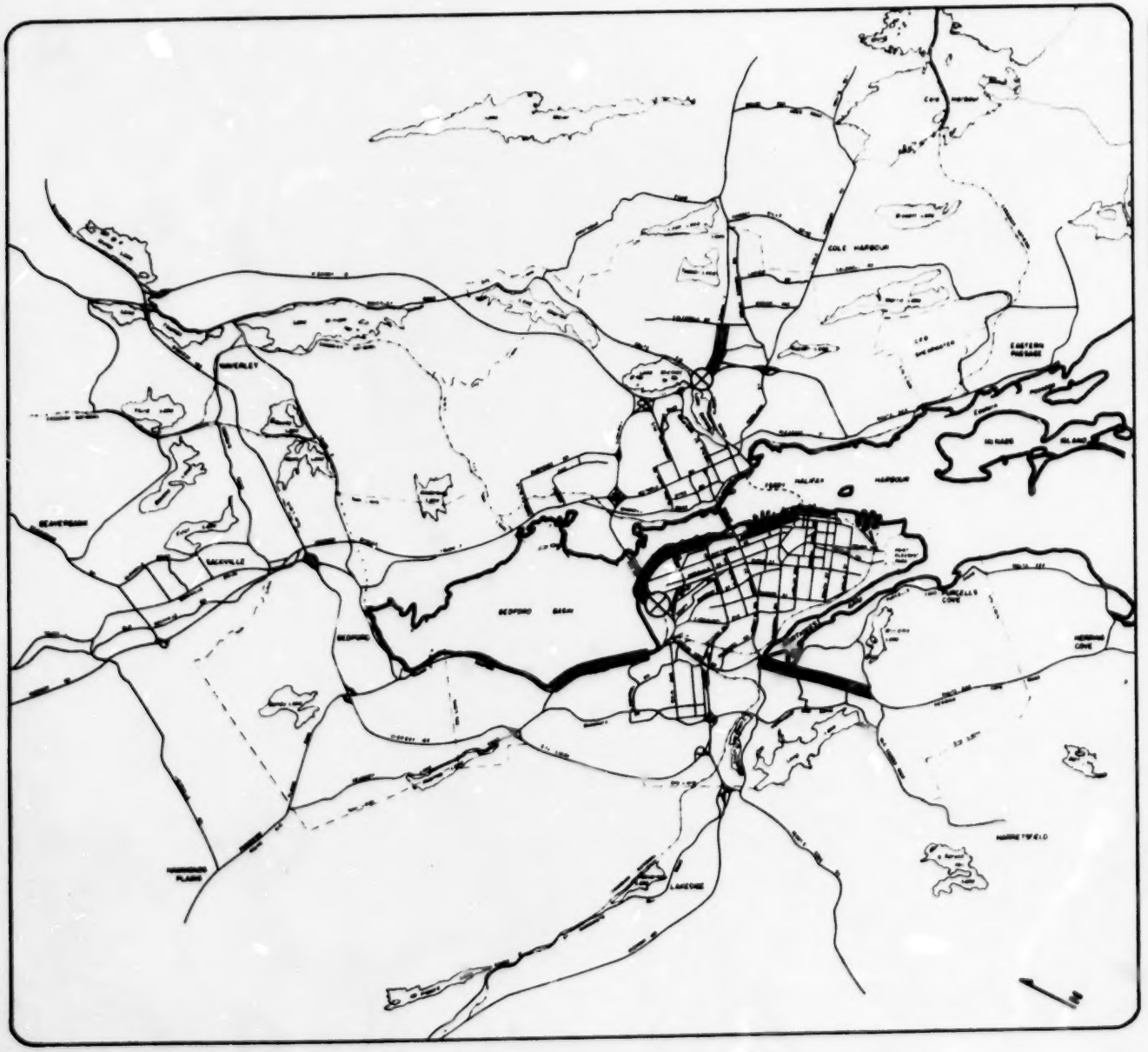
- widening of Robie Street approach ramp to the MacKay Bridge

These relatively low cost improvements would have a major impact immediately upon completion.

18. The following roadway improvements are required within the next 5 years:

- widening of Barrington Street from Devonshire Avenue to the MacKay Bridge ramps

- reconstruction of the Robie Street exit ramp from the MacKay Bridge



Halifax–Dartmouth

REGIONAL TRANSPORTATION STUDY

TYPE OF IMPROVEMENT

WIDEN EXISTING ROADWAY

RECONSTRUCTION

Prepared for: Inter-Departmental Committee on Transportation

Nova Scotia Department of Development

Nova Scotia Department of Transportation

Nova Scotia Department of Municipal Affairs

FIGURE 52

ROADWAY IMPROVEMENTS REQUIRED WITHIN NEXT 5 YEARS

- widening of Bedford Highway from Kearney Lake Road to Bayview Road

- widening of Herring Cove Road from Williams Lake Road to the Armdale Rotary

- interchange to replace the Micmac Rotary

- widening of Main Street from the Micmac Rotary to Caledonia Road

19. Traffic congestion on Portland Street could be relieved substantially with improvements to the Micmac Rotary and Main Street and/or the implementation of a new ferry service between Woodside and Halifax. In the event that neither of these projects is undertaken, widening of Portland Street between Alderney Drive and Gaston Road will be required.

20. Congestion problems on Bayers Road are somewhat related to the congestion situation on the ramps to and from the MacKay Bridge in Halifax in that both constitute major routes into the peninsular area for traffic from points west and north of Halifax. Improvements to MacKay Bridge ramps would delay, for some time, the need for improvements to Bayers Road. In any event, widening of Bayers Road will likely be required before 1995.

21. Widening of Herring Cove Road from Sussex Street to Halifax City limits will be necessary within the next 10 years.

22. If past population growth trends continue into the future, and if there are no substantial increases in the rate of growth of cross harbour transit and ferry

ridership, existing harbour bridge capacity will be reached by approximately 1995. This situation will require detailed study in coming years.

23. A third harbour bridge crossing in the vicinity of George's Island, at an estimated cost of 200 million 1984 dollars, would contribute significantly to the relief of many congestion problems caused by cross harbour traffic throughout the metropolitan area.

24. A bridge across the Northwest Arm (estimated to cost 50 million 1984 dollars) would be beneficial to many travelers. However, Northwest Arm Drive as well as recent and planned improvements to the Herring Cove Road will reduce the need for such a facility. The disruptive impact of such a facility in the south end of Halifax peninsula could be substantial. On the basis of past growth trends, however, such a facility will not be required within the next 10 years.

25. The provincial government can, through provincial land use policies (and supporting land development programs) similar to those contained in the Halifax-Dartmouth Regional Development Plan, influence the pattern of development in the region such that:

- maximum benefit or return is gained from past investments in the region's transportation system; and,
- the need for capital intensive facilities such as a third harbour bridge crossing and a bridge across the Northwest Arm could be delayed for a number of years beyond the point in time they might otherwise be required.

Reduced Peak Period Travel

26. Major employers in the Halifax-Dartmouth area should be encouraged to adopt variable work hour policies as a means of relieving peak hour congestion problems in the metropolitan area.

Downtown Parking

27. While the location of short-term parking space causes some inconvenience, there is no major shortage of parking space in the downtown areas of Halifax and Dartmouth. In view of the rapid rate of commercial development in the downtown area, this issue requires detailed study and close monitoring in coming years.

Future Transportation Planning

28. There is a strong need for continuing and coordinated provincial government involvement in regional transportation planning and management. The most appropriate means of maintaining this level of involvement is through the establishment of an urban transportation planning and management centre within the Department of Transportation. The centre should be assisted by a regional transportation advisory committee, comprised of representatives of several provincial government departments and municipal units, as well as boards and commissions involved in providing transportation services in the region.

RECOMMENDATIONS

The Inter-Departmental Committee on Transportation recommends that:

1. The Metropolitan Transit Commission bus fleet be increased by 24 vehicles over the next 5 years and that these new vehicles be utilized solely for express commuter bus services.

2. The Angus L. Macdonald Bridge toll plaza be modified to provide an exclusive lane for transit vehicles.

3. A new passenger ferry service between Woodside and Halifax be implemented.

4. Traffic signal systems throughout metro be upgraded to provide for centralized computer-based traffic control.

5. Design and construction of the following roadway improvements commence immediately:

    1. widening of Barrington Street between the Cogswell Street Interchange and Artz Street; and

    2. widening of the Robie Street approach ramp to the MacKay Bridge.

6. Design work on the following roadway improvements begin as soon as possible in order that improvements may be completed within the next five years:

- widening of Barrington Street from Devonshire Avenue to the MacKay Bridge ramps

- reconstruction of the Robie Street exit ramp from the MacKay Bridge

- widening of Bedford Highway from Kearney Lake Road to Bayview Road

- widening of Herring Cove Road from Williams Lake Road to the Armdale Rotary

- construction of an interchange to replace the Micmac Rotary

- widening of Main Street from the Micmac Rotary to Caledonia Road

7. A thorough study of downtown parking be completed within the next 6 months.

8. New land use policies (i.e., a revised Halifax-Dartmouth Regional Development Plan) be prepared and adopted by the provincial government in order to ensure that future development in the region occurs in a manner such that past investment in transportation infrastructure is optimized and future investment requirements are minimized while continuing to ensure high levels of mobility.

9. The provincial government establish an urban transportation planning and management centre within the Department of Transportation with specific responsibility for overseeing the implementation of this report's

recommendations and carrying out urban transportation planning and management responsibilities for the metropolitan area on a continuing basis.

10. A regional transportation advisory committee representing the Departments of Municipal Affairs, Transportation, and Development, the region's four municipal units, and other metro area transportation related boards and commissions be established to provide ongoing input to the urban transportation planning and management centre.

COST SUMMARY

The following table provides a summary of estimated costs associated with each of the previously recommended transportation improvements. For the non-roadway construction improvements, annual operating costs are net of estimated user revenue. Annual maintenance costs for improved roadways are not expected to be substantially different from present costs and therefore have not been included in this presentation.

The capital cost of transportation system improvements recommended for the metropolitan area over the next 5 years will amount to approximately 55 million dollars. Annual operating costs (net of user revenue) associated with these improvements will increase by nearly 1 million dollars per annum. Of the 55 million dollar capital investment requirement, roadway construction/reconstruction will amount to 42 million dollars.

Table S 1

0 - 5 YEAR IMPROVEMENT COST ESTIMATES

	Improvement Project Description	Capital Cost	Annual Operating Costs[1]
1.	24 New Transit Vehicles	$ 4,000,000	$ 500,000
2.	Exclusive Bus Lane - Macdonald Bridge Toll Plaza	25,000	--
3.	Woodside-Halifax Ferry Service	7,000,000	100,000[2]
4.	Computerized Area Traffic Control	2,000,000	300,000
5.	Barrington St. widening - Cogswell Street to Artz Street	500,000	--
6.	Widening of Robie Street approach ramp to MacKay Bridge	500,000	--
7.	Barrington St. widening - Devonshire Avenue to MacKay Bridge ramps	4,000,000	--
8.	Reconstruction of Robie Street exit ramp from MacKay Bridge	4,000,000	--
9.	Bedford Highway widening - Kearney Lake Rd. to Bayview Rd.	4,000,000	--
10.	Herring Cove Road widening - Williams Lake Road to Armdale Rotary	10,000,000	--
11.	Interchange to replace Micmac Rotary	16,000,000	--
12.	Main Street widening - Caledonia Road to Micmac Rotary	3,000,000	--
	TOTAL	$ 55,025,000	$ 900,000

[1] Annual costs shown are net of direct user revenue received.

[2] Deficit for existing ferry operation will increase by approximately $80,000, also, because of ridership diversion to Woodside-Halifax service.

IMPLEMENTATION

No attempt has been made to develop a comprehensive implementation schedule for the projects identified in Table S1. However, from a cash flow perspective, there is ample flexibility for developing an implementation schedule that will spread the 55 million dollar capital expenditure requirement evenly over the next 5 year period (i.e., 11 million dollars per year).